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ABSTRACT

A process that could facilitate a cross-cultural learning environment was designed. The process involved (1) developing motivational devices using an historical selection process that incorporated a "significant difference", evaluated reconstructed historical materials, devices that prevent a "past-present" dichotomy, directional and enculturative mechanisms, and designs for internalizing conceptual perspectives and thought systems; (2) creating a deliberate curriculum design which integrated those multi-cultural learning systems that best facilitated the teaching-learning environment in which the motivator was to be applied; and (3) setting up evaluation and accountability mechanisms through the use of instructional objectives and thought process variation. Most of the units were field-tested in grades K-12. Although all the units use Pre-Columbian, Meso-American materials and concepts, each unit has a basic focus in a discipline, i.e., history, social science, mathematics, fine arts, and language arts. Each unit has an accompanying bibliography and sample activities or backup materials. Units are: (1) Patolli, a Game of Strategy (English and Spanish versions); (2) Pre-Columbian Map Games; (3) Meso-American Man and the Domestication of Plants--Juego de Maiz; (4) Design Unit (English and Spanish); (5) Mythology (English and Spanish); (6) "Atl Atl" (TM) Unit; and (7) Calendar Unit (English and Spanish). (NQ)

Pre-Columbian Curriculum Motivators:
An Approach to Bi-cultural Instruction

By

Randall Cosme Jiménez

A.B. (California State University, San Jose) 1966

M.A. (California State University, San Jose) 1969

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Pre-Columbian Curriculum Motivators:
An Approach to Bi-Cultural Instruction

ABSTRACT

Randall Cosme Jiménez

The overall purpose of this work is to design a process wherein curriculum developers can create a deliberately designed curriculum that facilitates cross-cultural education.

Enculturation is one of the major aims of the educational process. Therefore, educators need to be aware of the various forms of enculturation. We live in a society where the school is viewed as an enculturative agency for only the dominant society. Consequently, it presents a limited perspective to the students in a cross-cultural environment. This traditional form of enculturation has been mono-cultural in nature and has forced minority groups to acculturate at the expense of their culture. This study provides a mechanism for cross-cultural forms of enculturation, wherein the significant differences that are developed by parallel cultures, may be incorporated by or adapted to each culture in the society.

A society is the sum total of all the various socio-cultural groups that have significantly affected it. If the society has a cross-cultural heritage, then the enculturative institutions of that society should reflect that cross-cultural perspective.

Thus, this study sought a process that could facilitate a cross-cultural learning environment. The process for manipulating a cross-cultural learning mechanism is:

1. Develop motivational devices using an historical selection process that incorporates the following factors:
 - a) "significant difference,"
 - b) evaluated reconstructed historical material,
 - c) devices that prevent a "past-present" dichotomy,
 - d) motivational and enculturative mechanisms, and
 - e) designs for internalizing conceptual perspectives and thought systems.
2. Create a deliberate curriculum design which integrates those multi-cultural learning systems that best facilitate the teaching-learning environment in which the motivator is to be applied.
3. Set up evaluation and accountability mechanisms through the use of instructional objectives and thought process variation.

Therefore, this study addressed itself to:

- A. The development of an instrument that synthesizes historical and educational methodology.
- B. The creation of a deliberate methodological and organizational structure that applies the selected cultural inputs to present curriculum development strategies.
- C. The synthesis of a mechanism that applies Meso-American, Pre-Columbian cultural inputs as motivational devices for enacting a cross-cultural enculturative process.

This study also presents recommendations and sample materials for the application of the cross-cultural enculturative process. This process and the materials for application are not to be considered the ultimate in cross-cultural curriculum design.

Staten W. Webster, Chairman
Dissertation Committee

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PART I

Rationale for the Bi-cultural Curriculum Development Process

Introduction

In education, curriculum developers are concerned with the development of learning systems whose aims are termed loosely as "socialization". Socialization is one of the aims of the educational process. This process encompasses those materials that involve intrapersonal and interpersonal operations. These materials are deliberately and explicitly designed to manipulate the multicultural teaching-learning environment and process. This manipulation develops in the student those cognitive processes that transfer materials to new social-experiential situations.

For example, curriculum developers who specialize in designing programs of study "about" Chicanos are generally informed by their employers such as instructors, teachers, community people, or administrators, that there appears to be a dearth of materials for socializing the Chicano.¹ This statement is not entirely true, for some materials are available. The problem is that these materials have not been developed into a specific "curriculum design" for socializing students in a cross-cultural learning environment. These materials have

been developed and applied in a random method and not in a deliberate and explicitly controlled teaching-learning operation and/or a curriculum design.

A deliberate curriculum design for cross-cultural application must contain selected cultural inputs in the form of educational materials within content disciplines. Curriculum developers seeking to design curricula for socializing minority groups have to rely heavily upon the tools provided by the other subject content disciplines, (i.e., philosophy, economics, sociology, etc.). These disciplines are delineated and derived from those "historical significant differences" and similarities that create and reinforce a culture. "Historical significant differences" are those time based, systematic, and random relationships that set one culture or ethnicity apart from other life-styles developed by man. When these differences are applied to curriculum in a random manner, the model would appear as Figure I. The model for developers seeking to deliberately design curricula and materials using historical significant difference as an organizing principle for socialization would appear as Figure II. One of the basic principles in the development of the model is directionality.

The directionality of educational socialization process is greatly influenced by the philosophical and

Traditional Form of Curriculum Process with Apparent Random
Use of Developmental Techniques and Mono-Cultural Approach

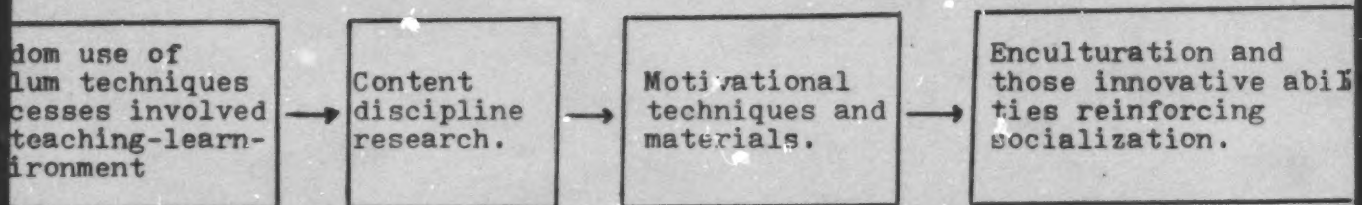
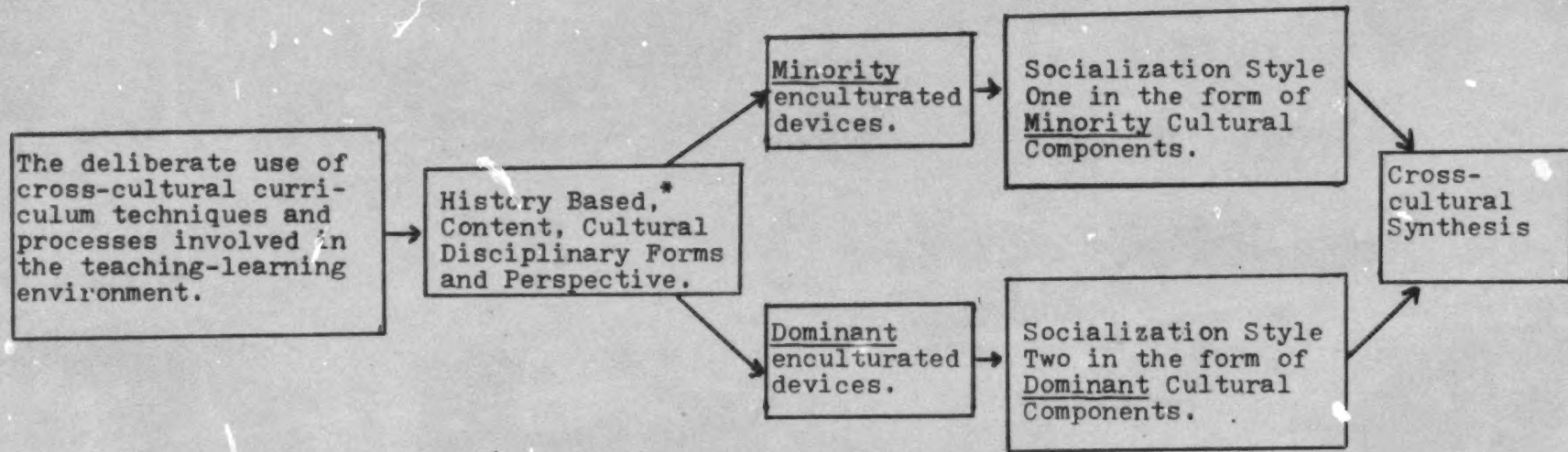


FIGURE I

cultural aims of the content, materials, and perspectives the student receives.² The process is restricted by the priorities and methodologies that formulate the perspectives of those materials. The addition of student interests and the application of motivational devices puts further constraint on the process. If the priorities developed and the content taught in school reflect only the socialization processes of the dominant culture, then all the minority cultures of the society either face extinction or have to develop alternative methods of reinforcement. (See Figure II.) By allowing for the parallel development of several cultures within a society, the model in Figure II deters the cultural extinction of minority ethnic groups. The model makes those cultures a viable part of the society wherein the significant differences developed by the parallel cultures may be incorporated by or adapted to each of the other cultures within the society. These adaptations and incorporations of minority cultural input is beneficial for the society as a whole by allowing for synthesized enculturative devices.

Yet, we live in a society where the school is designed as an enculturative device for only the dominant society. The general feeling of that society is that their children are learning necessary "tools" to become contributing members of the society. The main motivational force for the "middle-class student" (for the purposes of this work will be defined as those individuals who are between

Suggested Form of Curriculum Process with Deliberate Use of
Developmental Techniques and Cross-Cultural Approach



* History is common to all peoples. The use and interpretations of it are what makes history mono-cultural.

five and twenty-five years of age, who have educational pursuits as their full-time pursuit, who are not self-supporting, who come from a suburban environment, and whose combined family income averages between twelve to thirty thousand dollars per year) has been the chance, no matter how minimal, of achieving a higher social status and income than the status and economic standing of his/her parents.

Many educators argue that little in the academic experience of most students is personally rewarding, intellectually stimulating, or pleasurable. Most schools hold little intrinsic reward for students. Many curricula and instructional methodologies are in conflict with the home, for the authoritarian school environment is oppressive, and many teachers have negative feelings toward their students. Even so, most of the sources consulted for this study indicate that middle-class children in general are successful in school. The relationship between social class and school achievement and attendance seems well established. The middle-class individuals who also happen to be a part of an ethnic or racial minority group are no exception, although they may have certain problems not common to majority group children. Here again, the sources consulted attributed a large amount of this "academic success" for both minority and majority middle-class to the strong ethic of competition with its implied hope for material success.³

However, another relationship becomes evident in the case of "low economic status minority group students" (who are between the ages of five and twenty, whose full-time school participation is limited by family responsibilities, and part-time employment, who came from an urban or rural environment, who belong to a visibly different racial or ethnic group than the white, Anglo-European and whose combined family income averages less than ten thousand dollars per year). Coleman has found that a few low income students find much reward in school, in that for these students, school, with all its conflicts, is better than available alternatives.⁴ Some students may find reward from peer group relations, others from the extra-curricular activities, and a very few from academic excellence and subject matter content. These rewards may be enough to counterbalance both mental and physical withdrawal from school.

In the case of the Chicano, these rewards do not seem adequate enough to keep more than 40% of the Chicanos in the Southwest in high school.⁵ For example, the lack of rewards may contribute to the 60% drop-out rate (as averaged for Chicanos throughout the five Southwestern States of California, Arizona, New Mexico, Colorado and Texas) wherein the Chicano student withdraws mentally by the eighth grade, as described by the discrepancy between expected and achieved grades,⁶ and physically by the tenth grade as described by grade completion statistics.⁷ For

these students the crucial factor is not the relationship between the home and school, but between the ethnic group and the local society. Future rewards in the forms of acceptable social and occupational status keeps most Anglo and middle-class Chicanos in school.

However, for most minority groups, the educational experience as currently practiced is not viewed as a rewarding experience. They view school as a punishment, tend to under-achieve and eventually drop out.⁸ To these students, post-graduate rewards are associated with factors other than extra-curricular activities and the subject matter content of the school. They are more concerned as to fulfilling sexual roles, establishing peer group relationships and meeting immediate family needs. They have become aware at this point that to their minority group, job opportunities, for the most part, do not require a high school diploma.⁹

The minority student may conclude, as was reported in a study by Ralph Guzman, that the culturally unique student holds the same kinds of low social and occupational statuses regardless of their level of schooling.¹⁰ For this reason, a minority student may not see any reward associated with the education available to him in his community. Thus, the very reason that motivates the reward-receiving Anglo student to suffer through numerous hours of irrelevant busy work, becomes totally irrelevant to the minority student.

For example, the drop-out rate of minorities serves as an indication of the above phenomenon. Whenever school administrators and curriculum developers use the high drop-out rate and low academic achievement of minority students as a means to "prove" or assert the "inferiority" and "uneducatability" of the minority student, then the drop-out rate becomes a satisfying mechanism that reinforces low social and economic status for the next generation of minority groups.¹¹ These same administrators stress that high school graduation provides for preferential treatment in the job market, as "proved" by many well documented, nation-wide studies. However, the drop-out rate may in fact be relating back to the research done by Guzman wherein a high school diploma is not a determining factor for minorities in the work force. Thus, the administrator and curriculum designer should analyze the drop-out rate in terms of the local job market and discrimination as well as the nature of social roles and status of minority groups within the community.

The U.S. Commission on Civil Rights in report of April, 1972, states that the schools of the Southwest are so intrinsically related to the community in which they are located that those educational structures produce, for the most part, exactly the kind of people needed for local economic and social systems. If those systems require a docile, low-skilled worker, the

educational structures provide individuals to meet those needs. The research of Talcott Parsons has led him to conclude that "the primary selective process occurs through differential school performance in elementary school, and that the 'seal' is put on it in the junior high school."¹² In other words, the school acts for the community producing the kinds of humans necessary.¹³

Thus, the educational system and most of the curriculum developers working for it have taken the approach that the culturally unique student must be made over into that image of the dominant society. For the most part, education of the culturally unique student has been geared toward "lifting" the students up from their "disadvantaged position" into a middle-class oriented educational system. In other words, education of the culturally unique is "deficit," or "compensatory education." These programs do not build upon the student's strength, but rather tend to either supplant these strengths with new ones, or compensate the student in some way due to his educational and cultural "deficiency." Much of the time, this compensation comes in the area of language arts development. Motivators, such as short lessons and field experiences, are employed to get the student interested in the middle-class system. Much of the curriculum for the minority student is given over to the reshaping and remolding of the child's identity. The child is considered culturally and psychologically disadvantaged. Thus, educational

researchers and curriculum developers have set up learning environments and psychological motivating devices that have sought to make middle-class oriented individuals out of the culturally unique students.

In order to prevent this "reshaping" process, teacher training and curriculum designs should emphasize cross-cultural experiences that accentuate both the differences and similarities of the various cultural groups' make-up of the school's population. A possible way for preventing the mono-enculturative reshaping style is to build upon the cultural strengths of the culturally unique. This can be done by motivating all the students in the system, including the culturally unique, with enculturative devices from their own heritage. (Figure II.)

The problem then becomes one of seeking out a curriculum design that reinforces significant differences in the cognitive domain, while presenting opportunities in the affective domain that provide cultural synthesis for the student. A curriculum developer who wished to design curricula that reinforces the culture of a minority student would have to seek out content materials and devices that lead to cultural reinforcement. At the same time, these materials would contain opportunities of cultural synthesis for both minority and Anglo students. However, cultural components need to be incorporated into the materials. Otherwise, cultural reinforcement does not occur and the conflict may remain in the student.

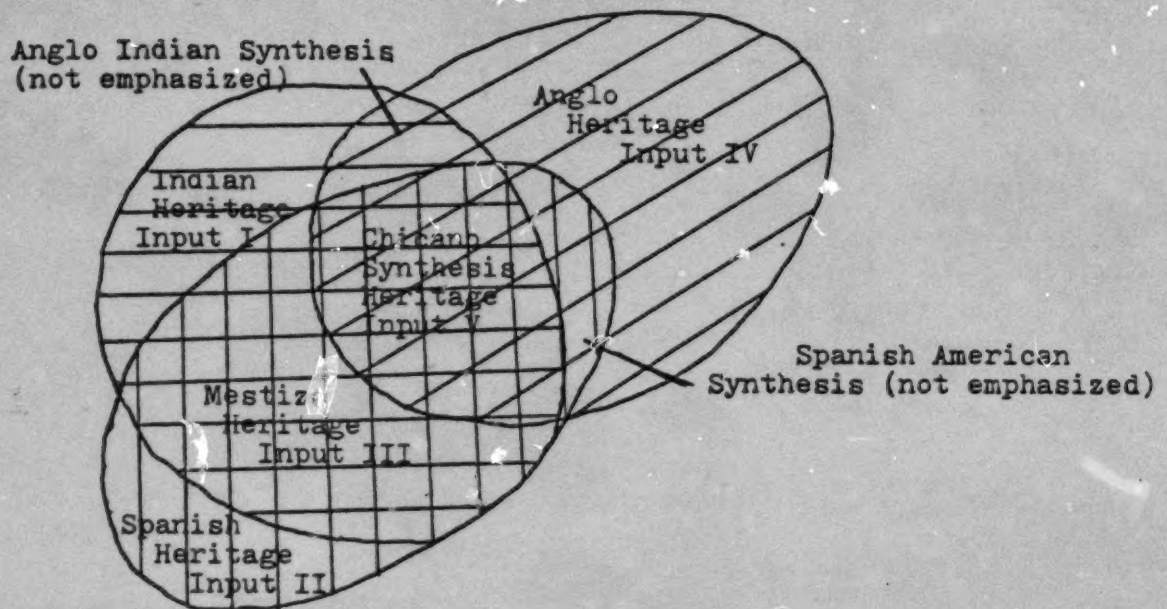
The components that contain cultural synthesis are to be found in those areas common to all people. For example, we all have the planet earth as a common geography, we all have strategy processes, we all eat food, and we all have a history. The use of these common components can be applied in a deliberate curriculum design as bridges between differing cultural groups by seeking to emphasize similarities as well as differences. Therefore, the purpose of this work is to design a process wherein the developer can create a deliberate curriculum that facilitates cross-cultural education.

The Framework of the Study

The design that incorporates cultural components is a curriculum based upon developmental strategies and motivational devices. These devices will tap the abilities instituted by the cultural setting and socialization processes of the student's environment and heritage. (See Figure III.) The student's entire educational experience must be continually reinforced by these devices. Instead of concentrating upon remediating past school failures, the curriculum must be concentrated upon those areas that will allow the student to internalize content motivators within an educational environment. The areas where these inputs can most likely be made are in the social sciences, literature, philosophy, and the fine arts. However, mathematics and medicine also have areas where direct application can be made.

For example, in the case of the Chicano student, Pre-Columbian heritage is an essential element of his enculturation. (Figure III) Thus, curriculum devices utilizing the Pre-Columbian thought systems and conceptual alternatives that will allow the Chicano students to internalize content motivators in the above listed areas would be in order. However, since the Anglo has utilized cultural inputs from Pre-Columbian civilizations, cross-cultural awareness can be achieved by involving them in the heritage of Pre-Columbian man.

FIGURE III



Each of the above cultural inputs has learning strategies and enculturation processes that are peculiar to their socialization mechanisms. The use of these peculiarities or "significant differences" through synthesis with each other may tend to create a developmental instead of remedial curriculum for Chicanos. The five cultural inputs that will be utilized as organizing principles of socialization techniques and forms of style for this study are

- I. The Indian or indigenous, Meso-American Heritage Input. This heritage will be a synthesis of Meso-American Indian culture.
- II. The Spanish Heritage Input or those cultural differences brought to the Americas by Spaniards.
- III. The Mestizo Heritage Input or that culture that formed from the synthesis of the indigenous Meso-American Indian cultures and the Spanish Heritage Input.
- IV. The Anglo Heritage Input or those cultural differences developed in the British Isles and Northern Europe and brought to the Americas by the Anglo-European.
- V. The Chicano Synthesis Heritage Input or those cultural differences resulting out of the synthesis of the Hispanic, Indian and Anglo cultures.

One of the specific learning differences of the synthesized Chicano socialization-enculturative process is an emphasis on oral-aural-visual learning, instead of a verbal-reading oriented educational environment. In order to use this factor and introduce the other students to a cross-cultural learning situation, processes that provide an opportunity for presenting the suggested Pre-Columbian curriculum motivators within the above stated condition of oral-aural-visual learning experiences are:

1. "Gaming"
2. The "Inquiry Method"
3. The "Discovery Process"
4. Those lessons and units that identify, design, implement, and evaluate a learning environment in terms of processes, questions, activities, supportive data, observable concepts, and generalizations.

Without the incorporation of the above processes into the curriculum design, culture reinforcement will suffer.

The above listing of learning experiences implies only that these strategies might prove useful in achieving socialization for Chicanos in an educational environment in which they can function while utilizing heritage-styled inputs as motivational and socializing devices. The establishment of learning patterns and thought systems through the use of Pre-Columbian curricula and the above stated methodologies may also prove useful for non-Chicano students. (See Figure III.) For both groups, the combining of the Pre-Columbian curricula with the above listed

methodologies not only teaches them basic learning skills, but also helps them internalize awareness of the Chicano culture. For the Chicano, the objective of affective characterization of identity with one's culture is a realistic aim of socialization in a society where assimilation for minorities has been an essential part of the socialization process.¹⁴

Statement of the Problem

This work is concerned with three problems. In order of their development, the first problem is the establishment of a criterion that synthesizes historical and educational methodology. This criteria is used for the selection of those cultural inputs that have educational applicability. (See Figure II and III.) The second problem is to create a deliberate methodological and organizational structure that applies the selected cultural inputs to present curriculum development strategies. The third problem, and the main focus of this work, is to develop a deliberate curriculum design that applies Meso-American, Pre-Columbian cultural inputs as motivational devices for the purpose of enacting a multicultural socialization process.

The above stated problems focus on the question: how can Pre-Columbian artifacts, thought, and value systems be incorporated into a deliberate cross-cultural curriculum

design in terms of present instructional strategies? The program that evolves as an answer to this question includes several model units utilizing the following essential elements:

1. The extrinsic organizing principles of the socialization processes.
2. The essential relationships of historical significant differences and similarities for developing motivational devices as a base for bi-cultural socialization.
3. The essential operating priorities and relationships of the cultural input materials in supporting the socialization processes.

The design of each unit includes the observable concepts (the cultural input materials) and the conditions under which the concepts can be observed (the instructional-socialization process). The processes are best facilitated through the methodologies of gaming, discovery, and inquiry. The observable concepts or cultural input materials are developed and utilized through stipulative, descriptive, and normative analysis of the observable past. This analysis is based upon the historical procedure of supplemental, indirect observation.¹⁵ The controlling for the selection of cultural components selected is done by holding the criteria for selection constant.

Limitation of the Study

This dissertation is confined to the question, "how can Pre-Columbian artifacts, thought, and value systems be utilized in the creation of cross-cultural curriculum

design within present instructional categories?" This work answers the above question only in terms of descriptive and normative analysis of historical significant differences in the observable past. The work does not try to manipulate either the selection of the historical differences, the conditions of their presentation, or the aim to which they are to be applied.

The units presented are not to be considered a complete curriculum for the instruction of students in the content area of Pre-Columbian History. They are model units, each using a different content discipline, and/or strategy.

This work does not attempt to answer the question "will these units be useful?" from an empirical perspective. The researcher is assuming, from his field work observation, that these units will be useful and he will leave statistical analysis regarding their usefulness to others.

This work does not concentrate upon the cultural synthesis of the Hispanic-American and the Anglo-Indian heritage inputs. While these syntheses are of significance to the socialization processes of the ethnic groups they represent, they are not part of the focus of this study and will be left to the efforts of others.

This study encompasses those entities necessary to develop a curriculum using ethno-historical materials from Pre-Columbian, Meso-American within the present frame-work of curriculum development methodologies. In

other words, this work is a historical-conceptual study applied within the frame-work of curriculum development theory.

The Cross-Cultural Development Process Utilizing Historical Motivators

In order to develop a cross-cultural curriculum, one must first have an extensive awareness and knowledge of the minority cultures being approached. Therefore, extensive materials accompany each unit as background information. The instructor or student using the motivational materials needs the background information in order to become aware of the cultural context from which the unit is developed. To develop a new unit, the research will have to collect the data (bibliographical and field work materials), "consciously transmit" the information, reconstitute data where necessary and evaluate the data. Each piece of evidence will have to be examined for its objectivity, authenticity and consistency with other data. This evaluation of the evidence will also include the perspective from which the data are developed, and whether or not the data should be interpreted figuratively or literally.

The place and time frame of Pre-Columbian, Meso-America has been chosen by this researcher as an area in which a cross-cultural curriculum can be developed. Not only is the Pre-Columbian man an essential part of the heritage of those populations indigenous to the Americas, but also essential to the Western-European American who has consciously and unconsciously adopted elements of the Pre-Columbian heritage into his own culture. Thus,

the unit developed utilizing this time-area can be couched within the historical and enculturative perspectives of a cross-cultural system. The motivators developed can be used to help the student study his heritage, and develop within the student a sense of identity based upon a time continuum. In the words of Carter Good,

"History may enable communities to grasp their relationship with the past and to plan more intelligently for the future; it may give to people a sense of continuity and a consciousness of unity in their efforts and achievements."¹⁶

To select and develop the historical motivators useful for a cross-cultural educational process, the following instrument was employed:

Criteria for Device Selection

1. Does the material demonstrate enough historical "significant difference" to abstract and relate the "significance" of past events and their "usefulness" to the future?
2. How much of the actual historical information ought to be included in the reconstruction of a motivational device?
3. Can the device be used in the instructional program along with the historical content without creating a "past-present" dichotomy?
4. What directionality and/or enculturative perspectives could be employed by the educational device?
5. Does the material allow for the internalization within the student of the conceptual perspectives and thought systems of his ancestral heritage?

When developing a cross-cultural historical motivator, the developer must realize that history, though

based upon fact, is not really "factual," but a series of accepted judgments dependent on sifted empirical evidence.¹⁷ In this sense,

"History differs in method from the natural sciences, since it is not a discipline of direct observation or experimentation, but utilizes reports of observations that cannot be repeated: the historian cannot recall the actors of the past to reproduce the famous scenes of history on the stage today. Instead of the direct observations used in science, the historian usually must depend on the observations of others (often untrained observers). Therefore, the historical method involves a procedure supplementary to observation, a process by which the historian seeks to test the truthfulness of the reports of observations made by others."¹⁸

The Historian must assume that he can reconstruct the past through the insights of the present. Since he lives in the present, he is bound to it by his environment. His very vocabulary prejudices his interpretations of the events of the past, for words change meanings and transliterations are meaningless.¹⁹

Once the above assumptions are made, an ethno-historian attempts to determine what material is "significant enough" to relate the past to the present. His task is to resift and re-evaluate the empirical evidence and accepted judgments at his disposal, in an objective, rigidly controlled manner based upon exhaustive historical research methodologies. He has to set up a selective system for reconstituting a cognitive orientation to the reality of the past. He cannot simply relate isolated facts, but must set up a conceptual web that simulates reality.²⁰

There is no actual research design for controlling the development of this conceptual web or reality, let alone a cross-cultural web of reality. No matter how much evidence is collected, no one can be completely sure that "enough" has been collected. Even "objectivity" is difficult to achieve, for historical facts are not purely objective, since they are "history" because historians say they are "significant" enough to be a fact of history. Objectivity in history cannot be objectivity of fact, but only an objective relationship between fact and interpretation along a time continuum of past to future. Theoretical conflicts and ambiguities are qualitatively compromised and synthesized into a judgment that is congruent with most of the available evidence.²¹ The methodological tools for producing these judgments in a controlled manner consist of accurate note-taking, bibliographical recording, and detailed recording of the decision-making process.

The detailing of the decision process is especially crucial to the question of "significance" in that the ethno-historian must make a value judgment about the significance of the facts he intends to relate. He has to evaluate the evidence and decide whether it warrants historical value, via his efforts, or whether the material is just interesting, but irrelevant fact. One of the things to keep in mind when evaluating historical value is that history "is concerned with human beings, not primarily as individuals (as in psychology, biography,

or the novel), but in groups--religious, cultural, ideological, interest, occupational, or social."²²

Within these limitations, this study attempts to develop materials wherein "significance" means that concept, event, or fact, that will best explain to the person of the present, the reality of the past. While historical interpretation plays an integral part in reconstituting historical facts, no one interpretation is wholly objective, no one interpretation is always as good as any other, and not all the facts of history are amenable to objective interpretation.²³

The amount of actual historical information necessary for accurate conveyance in the reconstruction of a motivational device is the second criterion one must develop to establish a well-designed conceptual ethno-historical web. If one includes too much information, the student may fail to see the forest for the trees. On the other hand, if not enough material is included, then the device may motivate, but fail to socialize and/or impart the reality of the past to the student.

For example, there are seven discs to the Pre-Columbian calendar. To include all of them would confuse the student the first time he is presented with calendrical systems of Meso-America. Thus, the sample unit in this work entitled, "The Calendar Unit" includes only a two-disc system that contains most of the essential elements of the Meso-American calendrical systems.

While reconstruction of the motivational device is dependent upon empirical evidence, the process of reconstruction must include only those materials that help the student clarify for himself the ethno-historical thought that lay behind the event. The materials included should allow the student to re-enact the thought patterns involved in studying heritage motivator. The construction activity for making the sample calendar is included in the Calendar Unit with this strategy in mind.

Even though re-enactment is vital, too much re-enactment may lead to a "past-present" dichotomy. This dichotomy becomes apparent when the student implies a "we-they" complex when referring to himself in relations to the past. Thus, the task of developing the devices must also include mechanisms that are concerned with the past and present as well as the mutual relationship between them. The devices have to be structured so that the student can plainly identify those elements in his heritage that are either still living in, or are supportive of the present. Turning to the Calendar Unit once again, we will see this idea expressed by the comparison of the decimal and vigesimal systems. Mention is also made of present-day mathematical systems that use base twenty. If some obvious tie between the past and present is not possible, then some other method of integrating the two will have to be employed.

In reconstructing the ethno-historical situation, the event or conceptual framework being used will have to be flexible. This flexibility will facilitate the student's internalization of conceptual perspectives and thought systems of his ancestral heritage. Thus, affective components in the form of attitudinal modifiers will be included in each unit. For example, each heritage motivator must be selected for its ability to raise questions regarding the mythological "savageness" and other dislogistic concepts regarding the minority student's heritage. The devices will allow for the development of pride within the students for their heritage--a heritage that is really something to be proud of, instead of something to be ridiculed. For example, the Chicano students will learn that their people were using systems of mathematics when the European was still counting on his fingers. They will learn from their heritage that they too have a mind that is good for more than disciplining the body for a life-time of manual labor. They will tend to break down the ethnocentric myth of Anglo dominance of intelligence.

Cross-Cultural Cognitive Styles

Once the historical context for the motivators has been selected through the utilization of the above criteria, the developer then must create a deliberate cross-cultural

curriculum design. This design should integrate those learning systems that best facilitate the teaching-learning environment in which the cross-cultural motivator is to be applied. Dr. John U. Michaelis has developed a work that identifies those processes that facilitate learning in a multicognitive situation.²⁴

Building upon the research of John U. Michaelis, the overall system to be developed for a cross-cultural approach to instruction should be based upon inquiry process. The research for the development of a design for the presentation of cross-cultural instruction has led this researcher to believe that there is a need "for a cohesive set of processes under which various skills could be subsumed."²⁵ Whereas the purpose of Dr. Michaelis' research was to identify those processes, one of the purposes of this study is to apply those processes to cross-cultural instruction.

The aforementioned overall inquiry approach will be attributed to those cognitive manipulations and effective internalizations students perform when following such strategies as gaming, simulations, problem solving, and discovery. Michaelis states, "examples of inquiry processes are observing, interpreting, generalizing, and inferring."²⁶ Most curriculum developers and educators probably recognize that these "examples" are gerund forms of some of the cognitive styles listed by Bloom in his Taxonomy of Educational Objectives: Cognitive Domain.

While Bloom's taxonomy and the inquiry approach can be used for the implementation of cross-cultural, cognitive strategies, the development of a process or approach for implementing the affective domain is much more complex. As will be seen in the following units, the affective components have been built into the justification of the unit and the "Purpose" section of each lesson. The reason for this is that the measurement of affective behavioral modification is extremely longitudinal and gradual. The affective power of a single lesson would almost seem minimal. Characterizing and internalizing are life long processes. Also, the use of specific affective objectives would limit the universality of the lesson for implementation in a K-12 curriculum.

Even so, the deliberate design is constructed to allow for overall affective objectives in the lower end of Krathwald's Taxonomy of Educational Objectives: Affective Domain. For the most part, these affective objectives are directly tied to awareness levels created by the motivational components.

In developing the motivational components of the units, emphasis is placed upon synthesizing the affective value of gaming and cognitive styled inquiry processes as an overall approach. In recent years, one of the areas in which educational methodological research has been centered is the area of game-simulation. However, these

sources deal with such topics as the "nature of play," "how to make school fun,"²⁷ or specific games for content presentation in a particular subject area.²⁹ While each of these sources tell "how" to use games, for the most part, they merely gloss over the "why" of using games. Besides being "how" instead of "why" oriented, much of the present published literature regarding games does not deal with the instructional benefits of game-simulation in the educational environment, the cognitive level developed by gaming, or the use of gaming techniques with the minority group students.

The next problem for the researcher working with games is finding a universal definition of what is a game. The definitions range from "that which is fun"³⁰ to a notion that games "are designed to extract from the complex world of reality a particular fragment of the environment."³¹ "The lack of agreement on terminology stems partly from the multitude of uses to which this educational innovation has been put and partly from the nature of the tool itself."³²

The definition for simulation games used for this work is that game simulations are those educational devices that mimic the real and/or social environment. In this sense, the game is used as a scaled-down model of the real situation and are easily applied to the cross-cultural, historical learning environment.

Theoretically, this scaling-down technique is easier for the student to handle, comprehend, and grasp the essence or conceptual base of the real situation or environment.

The essence of the gaming situation is that the game is never conceived as the real thing. The student is always made to understand that the game is a "pretend situation"; that the rules can be changed, but so will the game; and that he has the option to drop out of the game if it becomes too threatening. All of which he cannot do in a "real situation."

Much of the research on instructional methodology has gone into which methods create an opportunity for the most possible learning within the shortest period of time.³³ The educators doing this type research have concluded that situations that personalize, create a greater chance for verbalization on the part of the students, and break up classroom routine, present these opportunities. A well designed game, especially if the students have been involved in the design, can meet all of these criteria. Game-simulation is a highly motivating form of instruction and may get more students involved in the teaching-learning act than other forms of instruction. However, while game-simulation may shorten the time needed to learn, this technique does not necessarily lead to greater cognitive gain by the individual student than other forms of cognitive-

memory instruction. But when the game is synthesized with the inquiry process of inferring and observing, the game serves as a valuable motivating and reinforcing device.

Gaming is also related to what Flanders calls an indirect method of instruction.³⁴ This notion of the indirect applicability of gaming refers back to the notion that the situation is not "real" and the object being learned is not readily apparent to the student. If Flanders is correct in his contention that associational thought systems lead to greater retention and possible synthesis by the student, and this condition is integrated with the notion that game-simulation, though a divergent inquiry technique, leads to greater associative thought sequencing, then game-simulation may develop within the student (besides the content being taught) the ability to synthesize and integrate methodology that would in fact develop extended retention of cognitive-memory learning tasks.

Since the game is an indirect method of instruction, the teacher is forced into the role of an indirect teacher. There is greater opportunity for student initiated response and for student-to-student relationship and communication. This type of learning situation is more advantageous to the student from a ghetto/barrio background where the peer group is of major importance than a learning environment that emasculates peer group relationships by teacher

domination of the instructional time.³⁵ In this sense, gaming is a useful form of instruction in a Barrio or Ghetto school wherein the direct form of instruction is prevalent and is not producing enough learning and/or motivation to help the student stay in school, let alone apply the curriculum that is "theoretically" being taught.

In the gaming situation, the students have an opportunity to learn (discover, if you prefer) directly from the experience of the game. Many researchers have demonstrated that this form of inquiry leads to prolonged retention of the materials presented.³⁶ Not only do students learn from the game itself, but also from the activities that are used to follow the game. This is where the use of the game can be valuable in the reinforcement of itself or as a motivator to involve the students in materials that they might otherwise consider as "dry". This proposition has led researchers and curriculum developers to employ game-simulations as motivational devices.

The game can act as a motivator in several ways:

1. It stimulates student-initiated responses.
2. The game creates variety in classroom activities that parallels the variety presented in the media-ridden environment that envelops the student outside of the school.

3. Games are enjoyable and yet can promote hard-work by the student.³⁷
4. The game is one of few instructional methods that allows almost immediate feedback and a "completion effect."³⁸ The feedback is slow, the impact is lost and the student drops out because he feels ignored.
5. The feedback of a game is real, not just a mark (often failing one for the Chicano) in a "holy" grade book. When the student is successful in the game or completes the task, he knows it and is not ashamed to admit it. Often times the barrio student is afraid to admit the reception of a "good grade" for fear that his peers will scoff at him.³⁹
6. Games involve the student as an active instead of passive learner. This last point is probably the most important reason for using a game. The students as "players" and not the teacher as "ruler" make things happen in the class.⁴⁰

If the game is a motivator, do games teach the student a methodology that could develop extended retention of cognitive-memory learning tasks? To answer this question, let us study some of the conclusions reached by Robin McKeown in his dissertation entitled, "Affective Responses to Synthesis and Non-Synthesis Social Studies Tasks,"⁴¹ Carolyn Stern's dissertation entitled, Labeling

and Variety in Concept Identification Learning of Young Children,"⁴² by S.S. Boocock in a study entitled, Simulation Games and Control Beliefs,"⁴³ and the two previously cited works by Gordon and Tansey.

McKeown's study arrives at the conclusion that inquiry-oriented, synthesized game-type tasks do not lead to greater cognitive growth in most students than other cognitive-memory tasks. However, in the area of attitude growth, McKeown concluded that,

The results of the investigation indicate that inquiry oriented social studies programs... affect attitude formation and change significantly more than expository oriented social studies programs.⁴⁴

He also concluded that intelligence seemed to be involved in the enjoyment of the inquiry task with a high degree of correlation between the higher I.Q. scores and the highest enjoyment of the task.⁴⁵

Gordon's research supports McKeown's findings. She adds, however, that of all the inquiry, problem-solving tasks, game enjoyment is the least connected with intelligence. Even so, the game develops in the student the ability for "productive thinking."⁴⁶ She feels that the game actually increases the student's problem-solving abilities by keeping an open-ended situation with few simple criteria. The main cause for this is what she feels is the gaming situation's ability to alter the role of the instructor. In line with S.S. Boocock's data on how

the game controls beliefs by altering the teacher's roles in this statement by Gordon.

Educational games alter the function of the teacher. They bypass the teacher's mediation between students and materials by requiring that players interact directly with the materials. They also contradict a fundamental part of the teacher's traditional role, for there are no right answers in a game. Consequently, it is not the teacher's function to judge the student's progress toward learning facts, or to steer him clear of the pitfalls of error and oversight. A game provides no simple record of information embodied in it to be used for testing or drilling students... Games incorporate their own evaluation mechanism and reward system in the scoring and, in some cases, in the opportunity for players to judge the strategies of other players during play. The game, not the teacher, evaluates successful and unsuccessful play and rewards it accordingly.⁴⁷

In the barrio/ghetto, where the student is operating from a different conceptual cultural base than the teacher, a tool for developing methods of conceptual identification is imperative. In this area of concern, the game would provide a bridge from his "real intrinsic world" of the barrio/ghetto to the "real intrinsic world" of the school. This bridge style procedure is a vital element to concept mastery in any bilingual-bicultural teaching-learning environment. This proposition is supported by the research of Stern on using games for labeling and identification tasks when she states that, "one of the most important implications that may be drawn from these data is that young children are able to profit from training in concept-identification tasks."⁴⁸

While Stern emphasizes labeling and identification, the process of importance for Tansey is that of decision-making without censure.⁴⁹ Here again the teacher is taken out of the traditional leadership role and put into the role of a resource person or referee. Tansey is supported in his research by Fransecky and Trojanski who state that, "Often he or she (the teacher) must stand on the sidelines in a gaming experience."⁵⁰ Carol Stoll states that games force "students to make decisions, stand responsible for the outcome of the decisions and experience the rewards and frustrations contained in that particular 'slice of social life'."⁵¹

Each of the educators that have written on games seem to emphasize in some way the ability of the game to instill in the student the ability and motivation to learn as well as retain the learning. At the same time, they emphasize that as an instructional tool, the game, by its very nature, makes the class student-centered instead of teacher-dominated learning situations. When so many barrio/ghetto youths are "turning-off" and "dropping-out" of teacher-dominated learning situations, there is a need to explore the game-simulation method further and possibly start teaching students how to design games, as well as how to play them. This approach of centering the learning upon the student frees the teacher from discipline and allows more instructional

time to be applied to developing within individual students, a cross-cultural awareness. Thus, each of the sample units in this work contain student-centered motivational devices.

The unique qualities of each motivational device stems mostly from the incorporation of student-centered facets and reconstructed Pre-Columbian philosophical concepts. Each of those units, without incorporated games, have some manual or visual task incorporated that allows for discovery strategies. More than one strategy and several different inquiry processes are employed in each unit to give each student a maximum number of alternative cross-cultural learning situations. If the students cannot grasp the concept in one situation, they may pick it up in another. At the same time, they will be refining a cross-cultural, multiconceptual thinking process.

The Use of Competency Based Objectives in Cross-Cultural Education

The last element of the development process is to set up instructional objectives, both behavioral and affective that allow for maximum instructional flexibility while creating a standard of accountability. Teaching to an objective is particularly important in a cross-cultural teaching environment.

The use of Competency Based Education (CBE) in a cross-cultural environment insures equality and directional mechanisms. The teacher who is teaching in a situation

where the students are of another ethnicity or race than the teachers' need the immediacy of the objective to serve as a constant reminder of cultural framework of the lesson.

This is not to imply that performance objectives are more applicable to a cross-cultural situation than a monocultural one. The implication is, "that the movement toward CBE is a positive force for change," and a change in our educational system is necessary for the implementation of cross-cultural teaching-learning situations.⁵²

Another way in which CBE works toward developing equality of education in a cross-cultural situation is that it:

"calls for the identification of competencies which are stated in terms of behavioral objectives... which state explicitly:

- (1) what behavior is to be performed by whom,
- (2) when the behavior is to be performed,
- (3) the conditions under which the behavior is to be performed,
- (4) the proficiency level which is acceptable,
- (5) the time permitted to bring about the behavior.

...Additionally, the conditions of the objective assure that the teacher will have the necessary materials and instruction plans prior to the time when the behavior is expected to occur."⁵³

The listed conditions go a long way to prevent self-fulfilling prophecies imagined of student incompetency and deter the use of value judgment based evaluation on the part of the teacher.

CBE directs the teacher toward efficient use of instructional time. The very nature of the cross-cultural teaching learning environment requires maximum efficiency in the use of instructional time. Each lesson or activity is a mono-cultural, mono-lingual situation or could have one specific competency based objective. The nature of cross-culture, multilingual teaching-learning strategies implies that each objective has several sub-parts or secondary objectives.

For example, in an Anglo-Chicano, Spanish-English situation, each objective would have secondary objectives. Without the use of CBE, such a complicated maze of events would develop that even a bicultural teacher (an individual whose social-cultural life style extends beyond language; and functions with awareness and participates in two contrasting cultures)⁵⁴ would have a difficult time teaching the cross-cultural lesson, let alone the cross-lingual portion.

Beside the maze of teaching events developed by the poly-cultural situation, the inclusion of various cognitive styles and levels adds further to the confusion. The use of CBE techniques in this situation can turn confusion into structured variety. This is not to imply that an open-ended, instructured learning situation is not useful in a cross-cultural environment. The implication desired is that CBE can be used as a standard for evaluating the teaching-learning act while giving the

situation cultural directionality and variety. For example, by varying cognitive processes within a competency based framework, the teacher can provide a number of structured strategies, activities, and perspectives for learning a cross-cultural, cross-lingual situation. If an instructor were to limit cognitive processes to just recall or observation, most of motivational energy developed by the curriculum motivator would most likely be nullified.

At the same time, the developer and/or instructor is using competency objectives to evaluate teacher-student performance and the opportunities of multicultural instruction, one can use the degree of variety of the cognitive styles to evaluate the objectives. If the objective is restrictive, or several objectives in a single unit are producing identical thinking processes, then the objectives should be revised. For example, if the developer was creating a series of objectives where the student was constantly defining and classifying and no other cognitive processes, then the objectives should be modified to include a larger variety of thought processes. The exception to the above position might be a lesson where the object of the lesson was to teach a single cognitive skill, but even here, the use of other related skills would be useful.

Summary

To summarize the process by which the units in this work were developed, the researcher:

1. Develops motivation devices using a historical selection process that incorporates the following factors:
 - a) "significant difference,"
 - b) evaluated reconstructed historical materials,
 - c) devices that prevent a "past-present" dichotomy,
 - d) directional and enculturative mechanisms,
 - e) designs for internalizing conceptual perspectives and thought systems.
2. Create a deliberate curriculum design which integrates those multi-cultural learning systems that best facilitate the teaching-learning environment in which the motivator is to be applied.
3. Set up evaluation and accountability mechanisms through the use of instructional objectives and thought process variation.

PART II

Model Units

Recommendations for Application of the Units

Most of the units in this work have been field-tested in grades K-12. Teachers may have to modify the units to meet the specific needs of a particular grade level or class. The manner in which to make any specific change is to manipulate and/or modify the "question and activities" component. Some of the units can be used as vehicles to teach content materials other than those expressed in the form presented in this work. For example, the "Mythology Unit" could be used as a vehicle to teach language arts (as is presented in this work) or it could be used to teach the mythology of numbers, history, economics, or science.

Each one of the following units can be used independently or together in any order that fits into the curricula. Each unit has a basic focus in a discipline. All of the units use Pre-Columbian, Meso-American materials and concepts. For example, the "Patolli Unit" has a history-social science focus; the "Calendar Unit" has a mathematical focus; the "Design Unit" has a fine arts focus; and the "Mythology Unit" has a language arts focus. Each unit has an accompanying bibliography and samples of the type of activities or backup materials needed to pull off the

unit. This researcher suggests that the teacher do some of the reading suggested in the bibliography before starting a unit.

Assume that the unit, in form presented in this work, is exactly what is needed for a particular cross-cultural teaching environment. How should one use it in the classroom? Whether using the units independently or as part of a total curriculum, the following guideline for using this style of instruction has proven useful during the field testing of these materials.

1. Use the Preamble. One should always know why and what one is teaching. Some educators prefer to call this "why and what," the philosophic base of the lesson. Take time to impart this philosophic rationale to the student. Know why and what is the purpose of the lesson and then teach to that purpose.
2. Study the overall or "unit objectives" carefully. In cross-cultural teaching, a gestalt or whole view of the unit is extremely important for efficient classroom management. If the overall objectives are not clear, clarity and directionality will most likely not be present in the rest of the lesson. If the lack of clarity is due to a lack of content knowledge on the part of the teacher, then the teacher should turn to the bibliography for some background information.

Try to keep all the objectives of the unit as student centered as possible. In most cases this will guarantee that the activities and strategies will stay student centered.

3. Study the "lesson objectives" and "purpose."

The "purpose" section of each individual lesson is to the lesson what the "Preamble" is to the entire unit. In many cases, the "purpose" section contains the affective component of the lesson.

The "lesson objectives," like the "unit objectives" are written in competency base style. Each of the objectives are written so the teacher or evaluator will have a criteria by which to observe and evaluate learning behavior. Too often objectives are written where the teacher knows what the projector or tape-recorder is doing, but has no criteria by which to measure student performance. For example, if the objective is stated as: "To show a filmstrip entitled 'Pre-Columbian Man and the Development of Corn'," the evaluator could consider the lesson complete when the filmstrip has been shown. There is no indication of what the students are doing or even if they are expected to watch the filmstrip. In other words, the student has not been given directionality.

A more properly formed objective might be:
 "The student will be able to identify five relationships between the development of Pre-Columbian civilizations and corn as a food source by viewing the filmstrip 'Pre-Columbian Man and the Development of Corn'."
 In this objective the teacher not only knows what the student is doing, but at what level (five relationships) and by what thought process (identifying and analyzing).

4. Once the objectives are clearly outlined, the next area of focus should be the Teaching Strategy section. The Teaching Strategy section is called in many curriculum manuals the "methods" portion of the lesson. The Strategies are split into three subsections entitled: Inquiry Process; Questions and Activities, and Data, Concepts, and Generalizations. The "Inquiry column" and the "Data column" are check systems to monitor the thought systems and processes being used in the "Questions and Activities column." The "Inquiry column" contains the style and level of the cognitive process being used. The "Data column" displays basic ideas to be learned and key concepts by which student performance can be evaluated. If the "Inquiry

column" starts having a single process cropping-up consecutively, then the questions and activities should be modified to increase the variety of thought processes being used. If nothing but recall information began to appear in the "Data column", then either the questions and activities are not following the Inquiry process listed or the objectives of the lesson have convergent perspectives.

With each unit, make a checklist and evaluate what processes are taking place during the activities listed. If the students become involved in more processes than listed, do not become alarmed. The processes and data information given with each unit are considered minimal competencies and levels of behavior. If, at times, students innovate their own activities and these new activities meet the same competency levels as the ones in the unit, use the student's ideas.

The structure of the "Lessons" and the listing of "Strategies" as found in the units does not mean there is any time limit to offering the lesson. One lesson or a single question may take an entire class session. Some of the units may take weeks to complete. Use as much or as little time as needed.

The manner of implementation and the time spent in each unit depends to a large extent on the assessment and evaluational techniques of the teacher. Therefore, each

unit has an "Evaluation" section. What has been listed as "evaluation" in this work is the overall student response to each lesson and is not a test or a listing of completion responses. The testing for retention of content is not included but was done by turning the objectives of each lesson into examination questions and by using some of the questions in the "Strategy" section as quiz questions. If the student and teacher response to a lesson was unfavorable, the lesson was modified or removed.

Instructional Implications of the Units

These units could probably be best presented by a cross, or bi-cultural educational team. The team could be a paraprofessional and a teacher or two teachers. In any case, at least one member, and preferably both members of the team should speak the dialect or language of the target population, as well as formal English. The team approach is vital to a cross-cultural teaching environment for many of the same rationale presented for the use of competency-based education.

These materials should be used as a base from which to start the development of curriculum materials that have a cross-cultural perspective. These lessons are not the ultimate in curriculum planning, nor are they meant to be all that a teacher has to do to meet the needs of a cross-cultural learning environment. Therefore,

the instructional objective of these materials for the teacher is that the material will prompt educators to start to incorporate cross-cultural materials into the curriculum as well as prompting them to develop new and creative ideas for the teaching of their students.

Unit on: Pre-Columbian Culture
Patolli, a Game of Strategy
(English Version)

Patolli Unit

Preamble

The title of this unit is Patolli. It is entitled this due to the fact that the Aztec game used as a motivational gimmick in this lesson is called Patolli. The learning of the game itself is not the objective of this lesson. It is merely a means to achieve the lesson's objectives. This does not mean that the game itself is not worth learning. The Aztecs used Patolli in their educational system to develop decision making skills.

The learning system employed was one of going from the simple and specific reading and map assignments to the more general levels of concept learning and problem solving. Although the student is not specifically asked to perform complicated problem solving or principle learning situations, except possibly for the comprehension of the instructions, these processes will most likely be employed when the student is performing the game and will be measurable by his performance in the class competition. This unit was tested with sixth and seventh graders. It could probably be used in grades five through nine.

Unit Objectives

Primary Instructional Objectives: The student will be able to describe in an oral and written manner five facets of Aztec culture in relation to location and "life style" and relate those items to his own life.

Secondary Instructional Objectives: The student will be able to follow instructions in order to play the game. He will demonstrate decision making skills by playing the game of Patolli at a performance level of at least seventy percent.

Affective Objectives: For the Anglo student, an appreciation for the Chicano's heritage. For the Chicano student, the destruction of shame for one's culture and heritage. To get the students turned-on to the class. These items will be measured by the students "improvement level" in class participation.

Patolli Unit: Lesson One

Objective: The student will tell what he knows about Pre-Columbian civilizations.

Purpose: The lesson will provide for both student and teacher the base of prior knowledge from which the class can develop.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Recalling	Use a language arts lesson in which the student writes down all he knows about the Aztecs. Who are the Aztecs? Where did they live?	A man's past is what he knows about himself.

Evaluation: Motivation for this assignment was weak as it actively involved only about one-half of the class-- the rest only vaguely remembering the Aztecs, let alone

much about them! One young man, however, gained much prestige when he announced that he was one-half Aztec. Many of the children used him as a resource.

Patolli Unit: Lesson Two

Objective: The student will be able to locate Meso-America on a world map and define its boundaries.

Purpose: This lesson is designed to show the Chicano where his heritage stems from. It seems important to know where "I am from" as well as "who I am" in order to find out, "where I am going."

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Observing and Interpreting	Where am I from? Use A.V. aids such as large wall world maps; globes; transparencies of North America, maps of Mexico and North America; desk maps of North America.	<u>Symbols:</u> Maps are symbols of what man thinks the earth looks like.
Locating and Identifying	Have the student make his own map.	Different maps show different facts.
Interpreting and Recalling	Have the students develop a cyclic time line.	<u>Heritage:</u> the past of my people.
Recalling and Identifying	Have the student locate several sites in Meso-America to where he is now.	<u>Location:</u> the place on the earth where an object can be found.
Observing	Have the student locate himself on his time line.	<u>Location:</u> a person can be located in time as well as space.

Evaluation: Discussion was lively and drew their interest while the maps were only fairly well motivating. Some of the things I posted (especially the Meso-American Time Line) drew much comment. They also enjoyed comparing the maps, which I posted, for relative accuracy and beauty.

Patolli Unit: Lesson Three

Objective: The student will be able to discuss various aspects of Aztec culture.

Purpose: This lesson is the "who am I?" part of this unit. The lesson is aimed at getting the student turned-on to the Chicano heritage.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Recalling and Identifying	Who am I?	No one people have claim to the knowledge of the world.
Observing	Culture (See Sample #2 in the following materials).	Each man has a heritage.
Recalling	Pass out questionnaire that relates to the pamphlet (Sample #3).	
Interpreting	Use group sessions in which the students work on some of the questions as a committee. Each group prepares one paper which incorporates their joint efforts. Each group then records their findings on a tape.	
Recalling	The whole class reviews the tape.	

Evaluation: The pamphlets should be included in the student's weekly take-home folders. Many may have discussed them with their parents and gained a valuable experience.

The next day the completed questionnaires were posted, and again free time discussion was lively.

Patolli Unit: Lesson Four

Objective: The student will be able to define Patolli and discuss its use in Aztec society.

Purpose: To prepare the student to actually play the game and relate prior knowledge to the new situation.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Recalling	Review previous material by listening to the tape prepared in the previous lesson.	
Observing	Pass out ditto hand-out entitled <u>Patolli</u> (sample # 4).	Instructions on <u>Patolli</u> .
Interpreting	After reading the ditto, the class is asked to write down their basic ideas, some of which are placed on the black-board for total class discussion and classification.	Patolli is a game of chance.
Identifying, Classifying		

Evaluation: By this time the class began to push itself ahead in order to get to the actual designing and playing of the game. The tape recording acted as a good review device, for the students enjoyed listening to themselves and are easily motivated to do so.

Patolli Unit: Lesson Five

Objective: The student will design a game board for Patolli.

Purpose: The students design will be his own to keep. This will allow the student to be creative within the framework of the Aztec motif.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Interpreting	Several pieces of tagboard are cut into 18" x 18" squares. Transparencies of the game are made and projected. Each student uses the projections as a pattern to draw the basic outline of the game. (This is done by projecting the image from the transparency right onto the piece of tagboard.)	A <u>pattern</u> is something that can be modified.
Observing and Interpreting	The students are instructed to design the centers and corners in an Aztec motif. To aid the student in this assignment, drawings such as sample # 5 are provided. Students can use carbon paper to trace the designs they make onto the tagboard.	A Motif is a design. <u>Designs and symbols</u> may or may not follow a pattern.

Evaluation: This lesson took three days to complete. The class was a picture of self-motivation and young minds "doing their thing." Class enthusiasm was feverish. The designs created were both original and traditional.

Patolli Unit: Lesson Six

Objective: The student will learn to play Patolli.

Purpose: To develop reading comprehension using something relevant to the student. To give the student a chance to use mathematical skills in a meaningful manner. To develop decision making abilities.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Recalling	What is an Authority? What is a rule?	A rule is the law that controls the players.
Observing	Pass out pamphlet on Rules of <u>Patolli</u> (sample # 6). The students are instructed that the pamphlet of rules would be the absolute authority on the game for the class.	Rules on <u>Patolli</u> .
Observing	Class discussions and small group instruction are facilitated by the use of the transparencies.	

Evaluation: About twenty-five percent of the class had already had experience with Aggravation or a game like it. They were a great help in the small group discussions. Two days were required to complete the objectives of this lesson.

Patolli Unit: Lesson Seven

Objectives: The student will participate in a Patolli tournament. The students will implement a complicated set of rules, alter them to fit their needs, and practice teamwork and group cooperation.

Purpose: To take previous learning and apply it to a living situation.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Observing and Recalling	The class is divided into four groups. A sample game, as a class, is played with each of the four groups participating as one player. The overhead projector and a transparency are useful for this purpose.	Good teamwork is where all work together to help the team.
Applying	Next, teams are selected by putting numbers in a hat and having a drawing. Teams are listed on a tournament chart (Sample #7) in the starting positions. One pair of dice and a dixie cup (for a shaker) are given to each team. Each person brings his own markers. (The Aztecs used beans as markers.) To keep class participation high, a losers bowl is set up (Sample #8). Each round takes a class period.	

Evaluation: A sense of class unity was expressed by several of the students during the tournament. The class

was highly motivated and worked very hard. The contestants began to notice some of the intricacies of the game and spent time outside of class to plan strategies such as when and how long to hold a blockade. The mutual respect that developed between some opposing contestants was justification enough to plan more units such as this one.

Patolli Unit: Lesson Eight

Objectives: The student will write an evaluation of the unit.

Purpose: To upgrade the unit itself and to glean ideas from students to other units such as this one. To allow the student to participate in his own evaluation as well as the class evaluation process.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Interpreting	Assign four short essays prompted by the questions: 1. If you were to plan this unit or one like it, what would you do different?	An idea or ways of doing things do not change unless people change them.
Recalling	2. What did you like best about the unit? 3. What did you learn from the unit?	
Interpreting	4. What aspects of Aztec culture can be related to life today?	

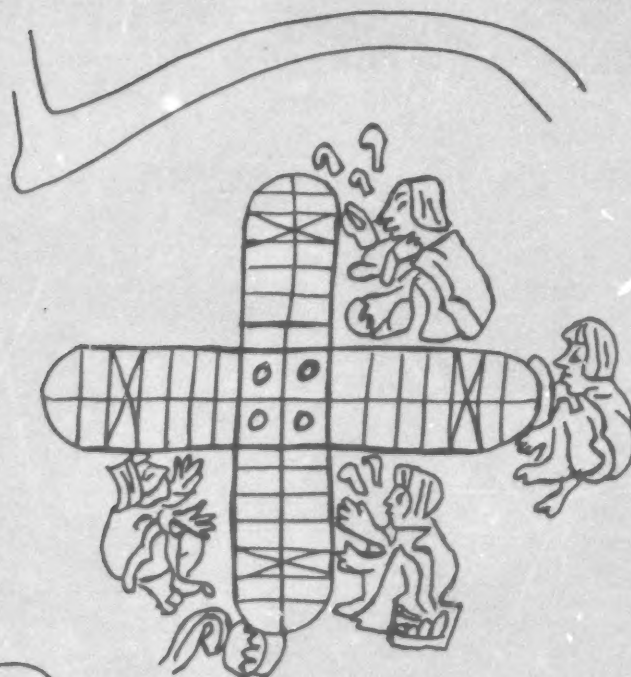
Evaluation: The most important point to arise again and again in the students' papers was how glad they were to be part of a people that had "such neat games." The

only complaint was that the unit was too short. The students felt that the "best" part of the unit was the tournament, with the next "best" part of the unit being the designing of the game boards. The designing of the boards seems to have challenged their initiative and creative ability. Most students designed boards that were uniquely theirs, yet within the rules of the design.

Affectively speaking, the class participation and interest of each student increased. Several students stated in their evaluations that "if all schools were like this, it would be the 'funnest' place." Others stated that this game was "theirs" and not "borrowed" from Europe. This became a point of pride for the class and has caused some negative feedback from other teachers in the school.

SAMPLE I

Patolli



SAMPLE II

The Aztecs

The Aztecs were a wandering tribe of Indians who entered the Valley of Mexico about 800 years ago. They said that they came from Atzlan, which we now call California, Arizona, Utah, Colorado, New Mexico, Texas, Sonora, and Chihuahua. The great city in the Valley of Mexico at that time was Azcapotzalco. The Aztecs worked for the rulers of Azcapotzalco as soldiers and lived on small islands on Lake Texcoco. (See Fig. 1) They farmed their islands and made them bigger by building chiampas. The chiampas were built by loading mud on rafts and then the rafts were sunk.

Figure 1



The Aztecs finally became strong enough to turn on the peoples who had been using them. They made war on Azcapotzalco and won. They now named the island city they built Tenochtitlan. The Aztec Empire began to spread all over Mexico. Tenochtitlan became a great city. Goods and peoples came to the city from hundreds of miles away. Many people came to the city to celebrate their religious holidays. They traveled on the long causeways and over the lake in canoes to get to the city.

Aztecs, like other peoples of ancient America, had their holidays based on a calendar of fifty-two years. They believed that five times around the calendar, or 260 years, was a complete cycle on earth. To keep the cycles from ending in a bad way with the Gods being unhappy, the Aztecs made many sacrifices. If the Gods were pleased with the sacrifices, the Aztecs would be allowed to live into the next cycle. If the Gods were not pleased, the people would be destroyed. Therefore, the Aztecs tried very hard to please their Gods.

The life of an Aztec was very hard and very strict. Priest and soldier ruled the Empire. Wishes of the gods were made known to the people by the priests. Soldiers insured the safety of the people, conquered other groups, took prisoners, and extracted tribute. There were special groups of people, some were merchants or artisans; others were farmers or slaves. In some cases even the slaves were permitted to own slaves.

Tenochtitlan was a town of government halls and religious temples. It was a place where nobles, generals, and priests lived. In a way, this presented a problem. Where could this great city get its food, clothing, tools, and other essentials?

To answer this question, the Aztecs created a market day. In some places there were laws that everyone must bring his goods to the market. People were severely punished for missing market day or for selling their goods on the way to the market. The Aztec rulers wanted to be very certain that all the produce reached the center of the nation.

When you shop in a market, do you notice how many things are sold by weight? This was not done in the Aztec market. Everything was sold by count.

Prices were set and carefully supervised by the government. Policemen patrolled the market place to make sure no one was cheated and nothing was stolen.

Sometimes a special court was set up in the center of the market to settle disputes between merchants and buyers. Justice was swift and sure. A thief was immediately put to death.

Before the army engaged in battle, messengers from the emperor made many trips to the enemy city. Perhaps the messages they carried demanded prisoners. If the foreign city refused, the messengers may have tried to

bribe the ruler. Failing that, the Aztecs would resort to threats against the ruler and all his people.

Each time the messengers visited an enemy city, they studied the main roads and tried to count the troops. They carefully remembered where the warriors were stationed. The Aztec messengers often tried to pay enemy soldiers not to fight. They spread frightening rumors among the people hoping to scare them into running away. If all these methods failed, the Aztecs were forced to fight a war.

The Aztec warriors moved quickly and silently. They divided into a number of groups and later joined near the battle area.

If possible, the Aztecs conquered the foreign army, burned their towns and took great numbers of prisoners. Sometimes, when the battle did not go as they wished, they took as many prisoners as possible and retreated to their capital.

At Tenochtitlan, word of the battle was eagerly awaited. A messenger was dispatched to the Emperor's court from the battlefield. Was it victory or defeat? If the messenger entered the court with his hair over his face, it meant the Aztec army had met defeat. If he bore news of victory, he sped into court waving his shield and spear.

The Strength of the Aztec Nation
Education

"Obey and honor your parents.
Enter houses after your elders.
Respect the gods and do their bidding.
Do not steal or cheat.
Always give food to the hungry.
Learn good manners.
Always tell the truth."

Parents told their children these things over and over. They lectured them as they helped in the field or in the house. Education for Aztec children began in the home. It was followed by instruction in state schools.

At birth, Aztec children were dedicated to the empire. Often the belongings of a newborn boy were buried secretly in enemy territory. Parents thought this would draw their child there as a man. He would conquer the enemy in battle and take many prisoners bringing him great honor and wealth.

Girls at School

When girls and boys were about twelve years of age, they went to separate schools. Priestesses taught most of the girls the skills of homemaking and a few of the mysteries of worship. Aztec schools were very strict. Talking was never permitted. As girls walked from home to school, they were always escorted by an adult. They were made to stand very straight when they walked, keeping their eyes lowered. It was considered very rude for girls to show the slightest interest in anything they might hear or see in public.

A few of the girls who went to school became priestesses, but most of them married and raised children of their own. Women did not engage in politics or government.

Aztec Boys at School

The education of boys was compulsory, longer and stricter. Boys entered one of two schools: the Telpochcalli (Tel poch KAHl lee), "House of Youth," or the Calmecac (Kal MAY kahk), "Row of Houses."

At sunrise, the crowing of the rooster awakened the boys of the House of Youth. Dressed in light cloaks, they arose, put away their flimsy sleeping clothes, and began the day's work. No mother came to awaken the late sleeper. All the boys knew the punishment for failing to arise!

Their school subjects were different from yours. Perhaps one day the priest would decide the group should work in the fields. Another might be spent in the hills trying out weapons or practicing battle tactics. At all times they boys were made to feel the importance of serving the community. That was the true measure of value to the Aztec's education.

Sometimes students followed an Aztec army into the battlefield. There they watched the battle as priests and warriors lectured them about the art of warfare.

In the late afternoon, students returned home to work with their fathers and join the family for dinner.

After the evening meal, they left once more for school and the evening rest. Shortly before midnight, all the students were awakened. They built fires to the gods and performed religious dances. When the dances were over, they finally were allowed to return to the sleeping room and sleep--until dawn! How does this school day compare with yours?

As time for graduation approached, the oldest students were taken into battle. They went not as regular warriors, but to help carry weapons or supplies. They were watched to see if they understood the tactics of the battle and if they were quick to obey orders. If a boy pleased the warriors, he was allowed to join the army. This was the chance of which many an Aztec boy dreamed. Now he could prove himself a worthy, brave warrior and an important part of the Aztec nation. It was his chance to become an adult. If he failed, his friends would tease him and he would be shamed. He would never hold an important office or wear the costume of the Eagle or the Jaguar warrior. If he failed, the best he could hope for was a small parcel of land to farm.

How did a boy prove himself? It was by taking prisoners in battle. If he was successful, his pigtail was cut. Then everyone knew he had reached adulthood.

School for Sons of the Nobles

The Calmecac was the school for sons of the rulers and the officers of Aztec society. It was more strict

than the Telpochcalli. The school day started before sunrise. The boys studied arithmetic, the calendar, religion, government, hunting, architecture, and rules of justice and warfare. The students were future generals, judges, priests, and governors of the land. It was an honor to attend the Calmecac. Students attended this school for about eight years. Some never left. They became priests and, in turn, trained other boys.

Obedience was so important that breaking some rules brought the death penalty! Can you see why students did their lessons well and on time? Do you think they were late to class or failed to do their homework?

Sample # 3

Name _____

AZTEC: THE EMPIRE BUILDERS

Directions: Answer the following questions as completely as possible.

1. Describe how the Aztec Empire began.
2. Describe the Aztec belief in the world's end.
3. Describe Tenochtitlan society.

4. Describe the Aztec method of making war.
5. Describe Aztec girls at school.
6. Describe Aztec boys at school.
7. How did the Noble's schooling differ from the rest of the schooling?

Sample #4

PATOLLI

Games have always been great fun to watch and especially to play. To the Aztec, it was also serious business, magical and full of form--ritual. They were more earnest in what was supposed to be unserious than in serious matters! They were also often more careful and honest than in their waging of war or politics.

Tlachtli is perhaps the best known game. It was played on a court with stone baskets. The ball was made of hard rubber. From it, we now have the popular game of basketball. One difference is that in Tlachtli the losers often lost their lives. The Aztecs were very serious about their games indeed!

Patolli was another famous Aztec game. It was something like backgammon or parchesi. It was played on a marked board or paper, with beans for counters. The cover of this paper shows what one of the boards probably looked like. The object was to travel about the board and return "home" to win.

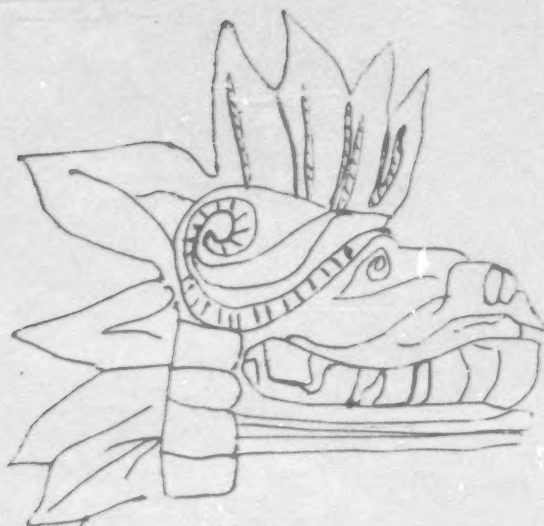
It is probably the game that Cortes used to play with Moctezuma when he was the Spaniards' captive in his own palace. It has also been called Totoque and was used for gambling.

There were many other games, mostly played by children.
Many of these games are played today under slightly different
rules and with new names

"The Aztec: Man & Tribe",
by Victor W. Von Hagen

Sample #5,

AZTEC



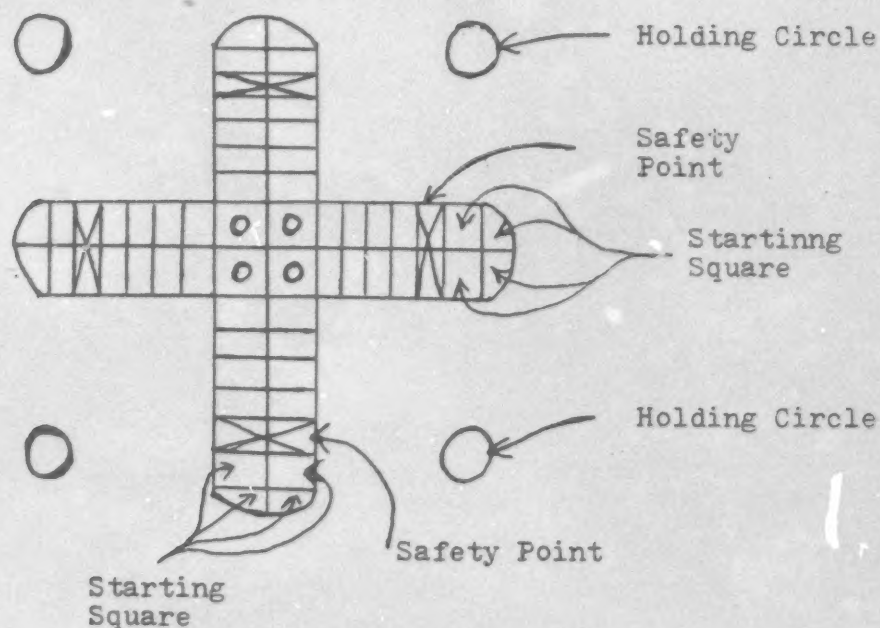
Plumed Serpent

Sample #6

Rules for Patolli

The game may be played by two, three or four persons. Each player has four "men" of the same color, but a different color from the other player's "men". Each player puts his "men" in the holding circle to the right of the starting square. (Fig. 1)

Fig. 1



Each player has a die. All players throw their die to see who will start. The player with the lowest number gets first chance. The play is from right to left, which means that the player on the right of the first player is next to throw the die and so on. Each of the players take turns throwing dice hoping for the number 5 to come up.

When the number 5 appears, the player who gets it can move one of his men to the starting square.

The players throw in succession whether they enter or not. Only a five can be used to move a "man" from the holding area to the starting square. A player has to enter his man, until they are all in the game, every time a 5 is thrown. The only exception is when a man is already in the starting square. If the man is yours, then the five can be used to move the man out of the starting square. If the man is an opponent's blockade, then you cannot enter your man. As long as any player's man is in a square with a circle or "X" through it, the man is safe from capture. These are the "safety" points. At all other times, if a player's man lands in a square occupied by an opponent, he captures the opponent and the opponent must return his "man" to the holding circle for re-entry.

Each player moves his men in the direction of the "home path" until he brings all of the men home. (Fig. 2.)

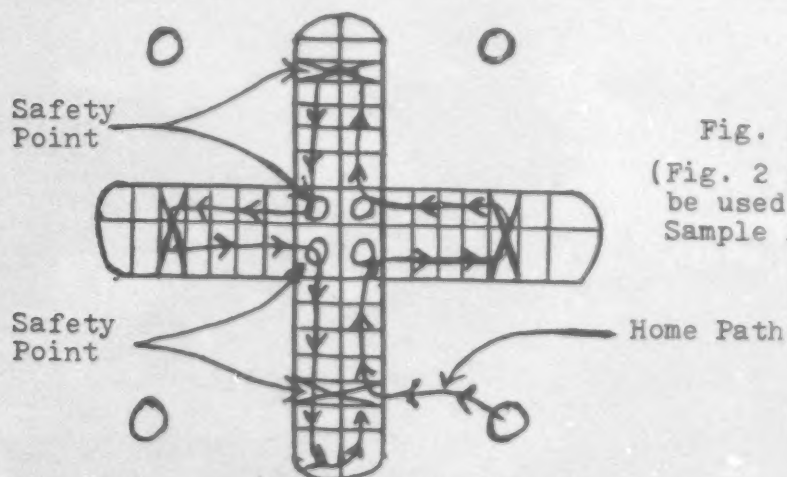


Fig. 2
(Fig. 2 should be used with Sample 10)

The four squares nearest each player is considered home for the player and cannot be entered by the opponent's men. The player who gets his four men home first wins the game.

When counting, the number of spaces between the lines and not the lines themselves, are counted. The space upon which a "man" starts from is not counted when moving a "man" forward.

An opponent's man cannot be captured on a safety point except when it rests on the Entering Space of another player. In this case, if the latter has an opportunity to enter or re-enter a "man", he may do so, capturing the opponent's "man". A "man" resting on a Safety Point may be passed by any other "man". Only two men, and they must be of the same color, may rest on the same plain or safety space. This is called a Blockade and may not be passed by any player, even though made up of his own men, while it remains unbroken. If a player cannot move without passing his own blockade, he must break it. Two "men" (or a Blockade) may not be moved any number of spaces together. In breaking the Blockade, the "men" must move forward singly, resting on different spaces at the end of the play. Should a Blockade occupy the Entering Space of a player, it would prevent the player from entering. While there is no rule to govern the breaking of a Blockade, it is not in the best interest of the game to hold one too long.

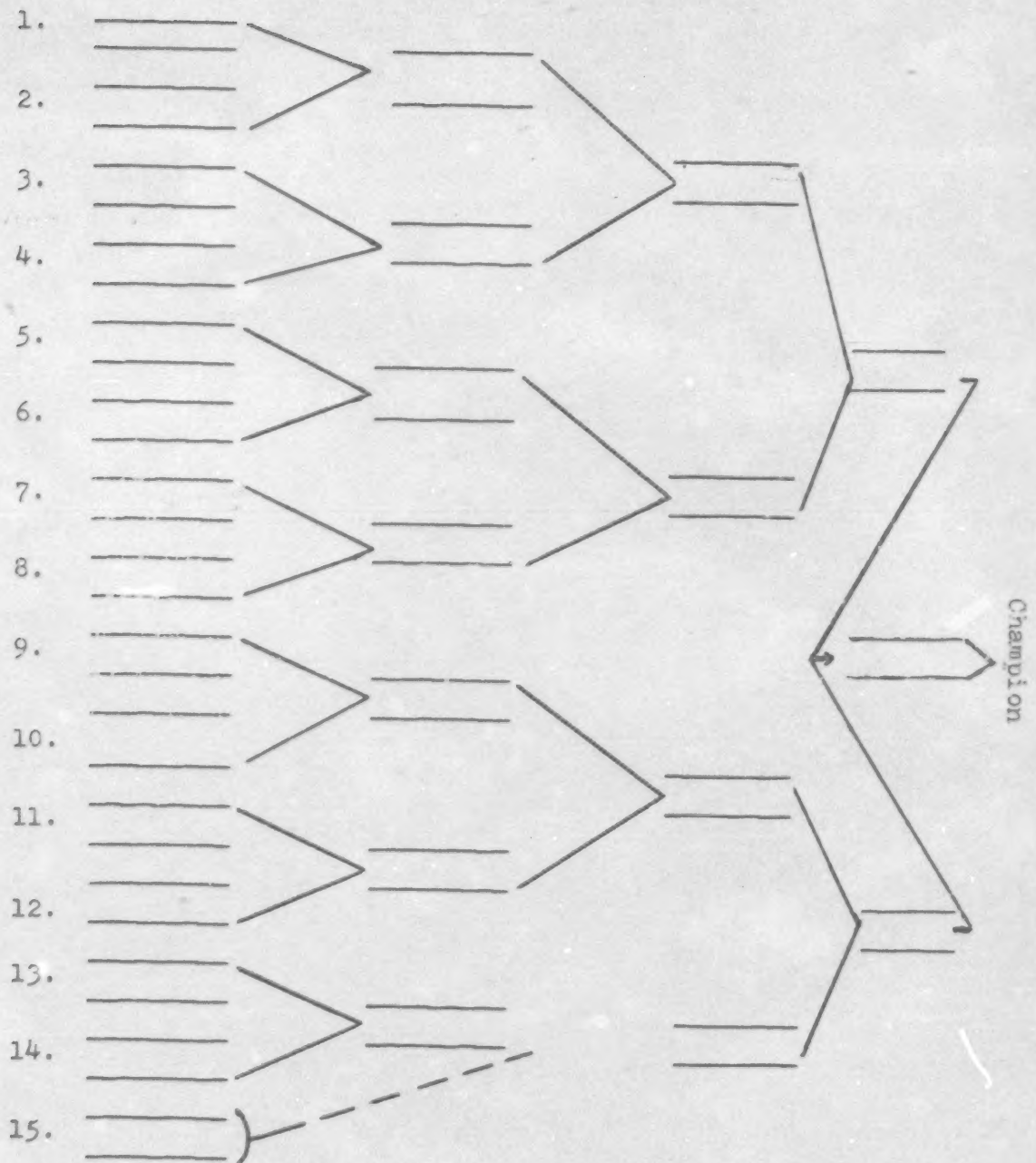
Any throw of the player's dice can be used to advance one "man" or divide the number of moves between two of his "men". For example, if the player throws a six, which counts for 10 spaces, the player could move one of his "men" six spaces and another 4 spaces, or a combination of moves that adds up to ten. When one throws a "six" the player can make a second throw. If a player throws a four then the count can be divided among two men just as long as the number of spaces moved by the two men combined is not more than four. Each of the numbers on the dice equals:

- 1 = 1 space
- 2 = 2 spaces
- 3 = 3 spaces
- 4 = 4 spaces
- 5 = 5 spaces or one entry
- 6 = 10 spaces and a second throw.

The player has to throw the exact number to move a "man" once the "man" has past the safety square adjacent to the home box, in order to move the man in the home box. One cannot use a "divided count" to move a man in the home box.

The chief aim of the players are to capture opponent's men as often as possible, in order to delay the opponents, while at the same time getting all of his men home.

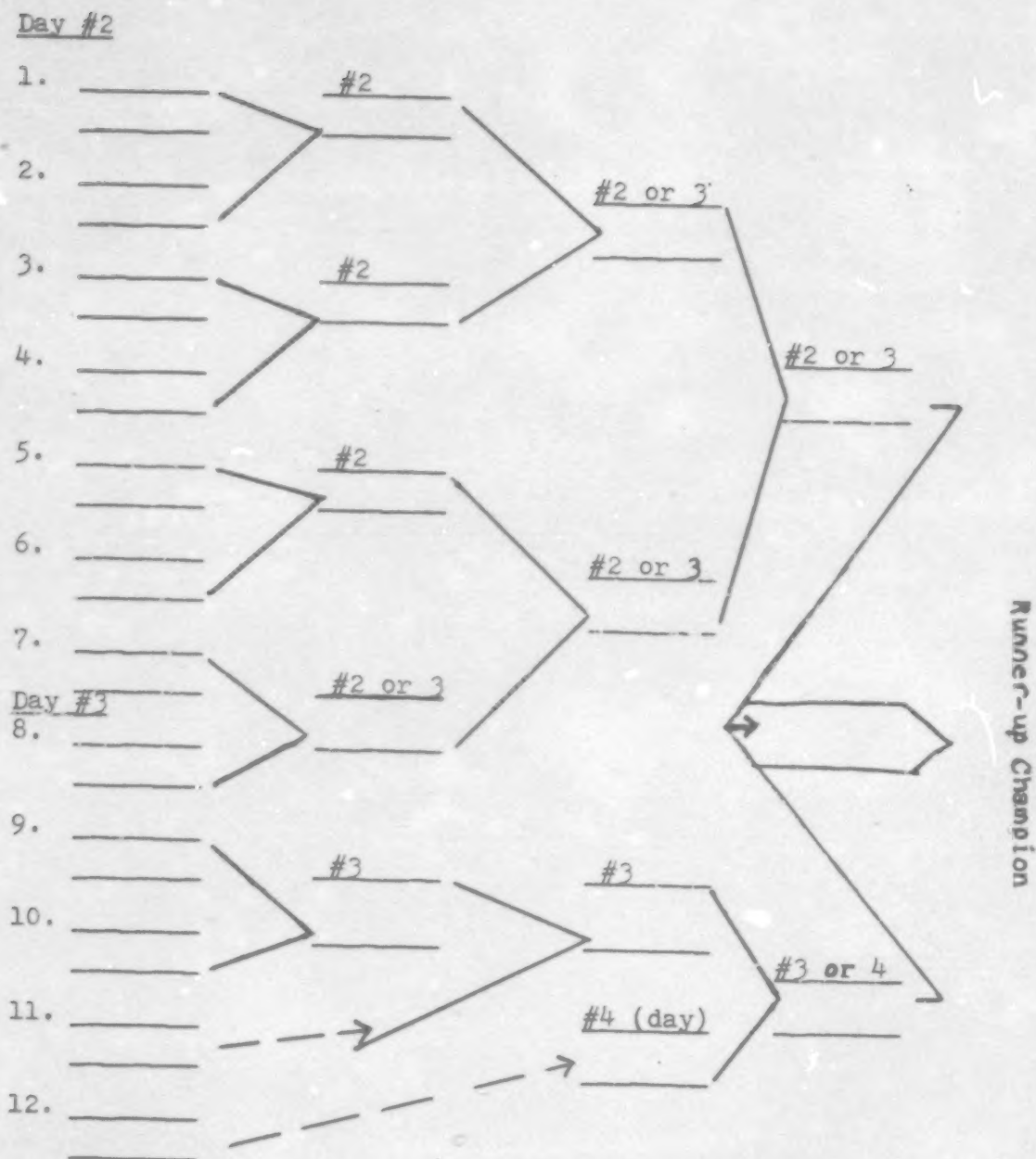
PATOLLI - WIN



This is a facsimile of the original which is still in use at school. The original is on tagboard and carefully lettered in multi-colors. Size: 18" x 24"

Sample #8

RUNNER-UP BOWL

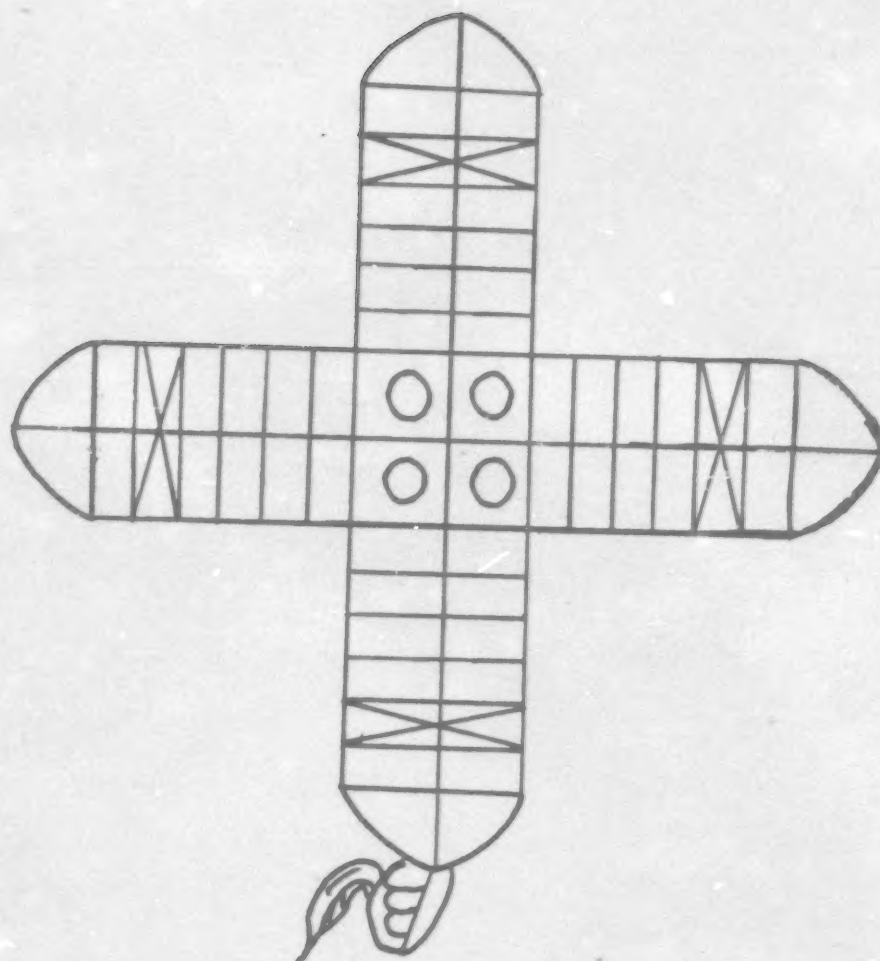


This is a facsimile of the original, again still in use in school. The original for this one is on manila paper in multi-color. Size 12" x 18"

The originals were carefully done and would have involved far too much time to duplicate as samples.

Sample #9

PATOLLI



Unit on: Pre-Columbian Culture

Unidad Patolli

(Versión en Español)

Unidad Patolli

Preambulo

El titulo de esta unidad es Patolli. El titulo proviene del juego Azteca usado como vehiculo de motivación. El aprender como jugar este juego no es el objetivo de la lección, meramente la manera de obtener los objetivos propuestos. Esto no quiere decir que el juego en si no se merece aprender. Los Aztecas usaban Patolli en su sistema educacional para enseñar el conocimiento practico y destreza en la habilidad de hacer deciciones.

El sistema de ensenanza empleado era uno en que se empezaba con una lectura sencilla y especifica graduando a conceptos mas generales y a la solución de problemas. Aunque no se le pide al alumno que especificamente ejecute soluciones de problemas complicados o mayor situaciones de aprendizaje, excepto posiblemente cuando se trata de la comprensión de las instrucciones, estos procesos serán empleados cuando el alumno este ejecutando el juego y su habilidad será medida por su habilidad de competir en la clase. Esta unidad fué examinada con alumnos del sexto y septimo grado.

Objetivo de la Unidad

Objetivos Primarios de Instrucción: El alumno podra describir oralmente y por escrito cinco etapas de la Cultura Azteca en relación con localidad y "manera de vivir" y relacionarlos a su propia manera de vivir.

Objetivos Secundarios de Instrucción: El alumno podrá seguir las instrucciones para jugar el juego. El alumno demostrará habilidad de hacer decisiones jugando el juego con un éxito de setenta por ciento.

Objetivo Afectivo: El alumno Anglo-Sajon obtendrá aprecio hacia la herencia del Chicano; para el alumno Chicano, la destrucción de vergüenza hacia su cultura y herencia. Para motivar e interesar al alumno en la clase, estos objetivos serán medidos por el nivel de mejoranza exhibida por el alumno en su participación en la clase.

Unidad Patolli: Lección Una

Objetivo: El alumno dirá lo que sabe sobre Civilizaciones precolombinas.

Intención: La lección proveerá para los alumnos y la maestra una base de conocimiento anterior del cual la clase pueda desarrollarse.

Estrategia de Enseñanza

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Recordando	Use una lección sobre artes de lengua donde el alumno escribe todo lo que sabe sobre los Aztecas. ¿Quiénes son? ¿Dónde vivían?	El pasado del hombre es lo que sabe de sí mismo.

Evaluación: Motivación y estímulo para esta lección fue débil porque solamente media clase participó activamente-- el resto vagamente recordaba a los Aztecas, mucho menos saber de ellos! Un joven ganó prestigio con la clase cuando dijo

que el era medio Azteca. Muchos de los alumnos lo utilizaban a el como recurso.

Unidad Patolli: Lección Dos

Objetivo: El alumno podra encontrar a Meso-America en un mapa mundial y definir sus fronteras.

Intención: Esta lección esta diseñada con el proposito de enseñarle al alumno Chicano de donde proviene su herencia. Parece ser de importancia saber "de donde soy", igualmente como "quien soy" para poder descubrir "a donde voy."

Estrategia de Enseñanza

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Observando e interpretando	"De donde soy?" Aquí use mapas mundiales grandes, globos, transparencias de Norte America y mapas chicos para cada alumno.	<u>Simbolos:</u> Mapas son simbolos de como el hombre piensa que es el mundo.
Ubicando e Identificando	Cada alumno hace su mapa.	Diferentes mapas indican diferentes hechos.
Interpretando Recordando	Cada alumno hace una linea de tiempo ciclica.	<u>Herencia:</u> El pasado de mi raza.
Recordando e Identificando	Cada alumno coloca varios sitios en Meso-America en relación de donde el esta ahora.	<u>Situación:</u> El lugar en la tierra donde un objeto se puede encontrar.
Observando	Cada alumno se localiza a si mismo en la linea de tiempo.	<u>Situación:</u> Una persona puede ser localizada en tiempo asi como en espacio.

Evaluación: La discusión fue activa y atrajo el interés de los alumnos mientras los mapas interesaron mas o menos bien. Algunos de los artículos que presenté (especialmente la línea de tiempo de Meso-América) atrajo bastante comentario. También gustaron comparar mapas que presenté. De interés mayor fue comparar su exactitud relativa y hermosura.

Unidad Patolli: Lección Tres

Objetivo: El alumno podrá discutir varios aspectos de la cultura Azteca.

Intención: Esta lección trata con el aspecto de "¿quien soy?" La lección es dirigida para motivar a los alumnos a entusiasmarse por la herencia Chicana.

Estrategia de Enseñanza

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Recordando e Identificando	"¿Quién soy?"	No una sola gente puede reclamar la sabiduría del mundo como suya.
Observando	Cultura. (Ejemplo #2.)	
Recordando	Distribuyase a los alumnos el cuestionario que se relaciona al folleto. (Ejemplo #3.)	
Interpretando	Use juntas en grupos en las cuales los alumnos trabajen con algunas de las preguntas en comité. Cada grupo prepara un papel en el cual se incorporan sus esfuerzos juntos. Cada grupo graba sus conclusiones en una cinta.	

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Recordando	Toda la clase repasa las cintas grabadas.	

Evaluación: El folleto fue incluido en el cuaderno semanal que cada alumno lleva a casa. Muchos de ellos quizás los discutieron con sus padres y así consiguieron una experiencia valiosa. El siguiente día los cuestionarios que estaban terminados fueron colocados al frente de la clase y siguió la discusión con mucho interés.

Unidad Patolli: Lección Cuatro

Objetivo: El alumno podrá definir Patolli y discutir su uso en la sociedad Azteca.

Intención: Preparar al alumno a que en realidad juegue el juego y que pueda relatar conocimiento previo a una situación nueva.

<u>Estrategia de Enseñanza</u>		
<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Recordando	Reviso de materiales previos escuchando las cintas grabadas en la lección anterior.	
Observando	Distribuyase copia intitulada <u>Patolli</u> (Ejemplo #4).	Instrucciones sobre <u>Patolli</u> .
Interpretando	Después de haber leído la copia, se le pide a la clase que escriban sus primeras ideas o pensamientos. Estos son escritos en la pizarra con el fin de que la clase entera los discuta y clasifique.	<u>Patolli</u> es un juego de suerte. Reglas se pueden clasificar y generalizar.
Identificando y clasificando		

Evaluación: Para este tiempo ya la clase había empezado a surgir adelante para poder empezar a diseñar y jugar el juego. La cinta grabada sirvió como un buen repaso. Los alumnos estaban encantados al oírse a sí mismos hablando en la cinta y fue fácil motivarlos.

Unidad Patolli: Lección Cinco

Objetivo: El alumno diseñara un juego en tabla de Patolli.

Intención: El juego que el alumno haga será de él. Esto asistirá al alumno a ser creativo entre la forma y tema Azteca.

Estrategia de Enseñanza

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Interpretando	Se cortan varios pedazos de cartón en cuadros de 18" x 18". Se hacen transparencias del juego y son proyectadas. Cada alumno usa la proyección como patrón para dibujar el bosquejo básico del juego. (Esto se hace proyectando la imagen de la transparencia directamente al pedazo de cartón.	Un patrón es algo que se puede modificar.
Observando e Interpretando	Los alumnos son instruidos a dibujar los centros y las esquinas de el bosquejo Azteca. Para asistir a los alumnos en esta tarea, dibujos como el Ejemplo #5 han sido distribuidos. Se puede usar papel pasante para trazar el diseño a sus cartones.	Un motivo es un diseño.

Evaluación: Esta lección se tardó tres días para completar. La clase fue un gran ejemplo de entusiasmo y motivación. ¡Mentes jóvenes trabajando furiosamente! Los diseños creados fueron originales y a la vez tradicionales.

Unidad Patolli: Lección Seis

Objetivo: El alumno aprendera a jugar Patolli.

Intención: La intención es la de desarrollar comprensión en la lectura usando algo pertinente al alumno, dar al alumno la oportunidad de usar destreza matemática de una manera significativa, y el desarrollar su habilidad para hacer decisiones.

Estrategia de Enseñanza

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Recordando	¿Que es autoridad? ¿Que es una regla?	Una regla es la ley que controla a los jugadores.
Observando	Distribuyase folletos de Patolli (Ejemplo #6). Los alumnos son instruidos que el folleto de reglas será la absoluta autoridad que la clase seguirá al jugar el juego.	Reglas de <u>Patolli</u> .
Observando	Discusión en clase e instrucción en grupos es facilitada con el uso de transparencias.	

Evaluación: Aproximadamente el veinticinco por ciento de la clase ya había jugado el juego Aggravation, o un juego similar. Esto ayudó mucho durante las discusiones

de los grupos. Se tomaron dos días para completar el objetivo de esta lección.

Unidad Patolli: Lección Siete

Objetivo: Los alumnos participarán en un torneo de Patolli. Los alumnos iniciaran un juego de reglas complicadas alternandolas a servir sus necesidades inmediatas. También practicarán camaradería y cooperación entre grupos.

Intención: La intención es de tomar aprendizaje previo y aplicarlo a una situación viva y real.

Estrategia de Enseñanza

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Observando y Recordando	La clase es dividida en cuatro grupos. Un juego se jugará en la clase con cada grupo participando como un jugador. Esto servirá como ejemplo. El proyector y una transparencia servirán para demostrar el ejemplo.	Buena camaradería es cuando todos trabajan juntos para ayudar a el equipo.
Aplicando	Equipos son elegidos poniendo números en un sombrero y haciendo una lotería. Equipos son enumerados en un cartelón (Ejemplo #7) en las posiciones de comienzo. Un par de dados y una taza de papel se le es dado a cada equipo. Cada persona tiene su propio lápiz para marcar. Los Aztecas usaban frijoles como marcadores. Para mantener la participación de la clase activa, un torneo para los perdedores se inicia. (Ejemplo #8.) Cada vuelta toma toda la duración de una clase.	

Evaluación: Varios alumnos en la clase expresaron un sentido de unidad durante el torneo. Motivación en la clase fue muy alta y todos trabajaron muy duro. Los concursantes empezaron a darse cuenta de algunas de las intrincacias del juego y pasaron horas fuera de la clase planeando estrategias de como, cuando, y por cuanto tiempo mantener un bloqueo. El respeto mutuo que se desarrolló entre algunos concursantes fue suficiente justificación para seguir planeando mas unidades como esta.

Unidad Patolli: Lección Ocho

Objetivo: El alumno escribira una evaluación sobre la unidad.

Intención: La intención es de mejorar esta unidad usando ideas de los alumnos para usarlos en siguientes unidades como esta. El intento tambien es de permitir al alumno que participe en la evaluación de si mismo igual como en la evaluación de la clase en general.

Estrategia de Enseñanza

Proceso de Indagación

Preguntas y Actividades

Datos, Conceptos, Generalizaciones

Interpretando

Pídale a los alumnos que escriban cuatro ensayos cortos dirigidos a las siguientes preguntas:

1. Si ustedes fueran a planear esta unidad, o una igual, ¿que harían diferente?

Una idea o manera de hacer cosas no cambian al menos que la gente las cambie.

<u>Proceso de Indagacion</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Recordando	2. ¿Que fué lo que les gusto mas de la unidad?	
	3. ¿Que aprendieron de esta unidad?	
Interpre- tando	4. ¿Cuales aspectos de la cultura Azteca pueden ser aplicados a la vida de hoy?	

Evaluación: El punto que los alumnos repitieron muchas veces fué que estaban contentos de ser parte de una raza que tenia juegos tan "suaves". La única queja fué que la unidad fué muy corta. Los alumnos expresaron que la mejor parte de la unidad fué el torneo, con el diseño del juego siendo la siguiente mejor actividad. El diseño del juego parece haber demandado iniciativa y la habilidad creativa de los alumnos. Los mas de los alumnos diseñaron tablas que eran únicas y siempre permaneciendo entre las reglas del diseño.

Afectivamente, la participación e interes de la clase aumentó. Varios alumnos en sus evaluaciones escribieron que si todas las escuelas fueran como esta, la escuela seria un lugar muy divertido. Otros alumnos indicaron que este juego era de ellos y no prestado de Europa. Esto se estableció como punto de orgullo por lo cual resultaron comentarios negativos de algunos otros maestros en la escuela.

Ejemplo #1

(Vea página 60, versión en Inglés)

Ejemplo #2

Los Aztecas

Los Aztecas fueron una tribu de indios errantes que entraron al Valle de México hace aproximadamente 800 años pasados. Dijeron que venían de Atzlan, lugar que ahora llamamos California, Arizona, Utah, Colorado, Nuevo Mexico, Texas, Sonora y Chihuahua. La Gran Ciudad en el Valle de México en ese tiempo era Azcapotzalco. Los Aztecas trabajaron para los gobernadores de Azcapotzalco como soldados y vivían en islas chicas en el lago Tezcoco. (Vease Figura #1.) Cultivaron sus islas y las hicieron mas grandes edificando Chiamoas. Hacían las Chiamoas cargando balsas con lodo y luego sumiendolas.

Figura #1

(Vea página 61, versión en Inglés)

Por fin los Aztecas se hicieron lo suficiente fuertes y se revelaron contra la gente que los oprimía. Pelearon contra Azcapotzalco y ganaron. Nombraron la ciudad que edificaron en la isla Tenochtitlan. El imperio Azteca empezó a desparramarse por todo México. Tenochtitlan llegó a ser una gran ciudad. Gente y mercancía vinieron a la ciudad de muy lejos. Gente venía a la ciudad para celebrar sus días religiosos. Viajaban en los largos arrecifes y sobre los lagos en canoas para llegar a la ciudad.

Los Aztecas, así como otras gentes de la América antigua, basaban sus días festivos en un calendario de cincuenta y dos años. Ellos creían que cinco vueltas en el calendario, o 260 años, era un ciclo completo en el mundo. Para que los ciclos no terminaran mal y los dioses no se disgustaran, los Aztecas ofrecían muchos sacrificios. Si los dioses quedaban conformes, ellos le permitirían a la gente vivir hasta el siguiente ciclo. Si los dioses no quedaban conformes, la gente sería destruida, de manera que la gente hacía mucho esfuerzo en mantener a los dioses conformes.

La vida del Azteca era muy dura y estricta. Sacerdotes y soldados gobernaban el imperio. Los deseos de los dioses se daban a conocer por medio de los sacerdotes. Los soldados aseguraban el bienestar de la gente, conquistaban otros grupos, tomaban presos y extraían tributos. Había grupos

especiales de gentes. Algunos eran comerciantes, o artesanos; otros eran agricultores o esclavos. En algunos casos hasta a los esclavos se les permitía poseer esclavos.

Tenochtitlan era un pueblo de edificios de gobierno y templos religiosos. Era un lugar donde vivían generales, nobles, y sacerdotes. Esto, en cierta manera presentaba un problema. ¿Donde podría obtener esta gran ciudad su comida, ropa, herramientas, y otros esenciales? Para resolver este problema, los Aztecas crearon un día de mercado. En algunos lugares había leyes que requerían a todos que trajeran sus mercancías al mercado. La gente era severamente castigada por no ir al día de mercado, o por vender su mercancía en el camino hacia el mercado. Los gobernantes Aztecas querían asegurarse que todos los productos llegaban al centro de la nación. ¿Cuando usted hace compras en el mercado, ¿ha notado que tantas cosas son vendidas por su peso? Esto no se hacía en el mercado Azteca. Todo lo que se vendía era contado. Los precios eran fijos y supervisados cuidadosamente por el gobierno. Policías recorrían el mercado para asegurar que nadie fuera engañado ni robado. A veces una corte especial era posicionada en el centro del mercado para resolver disgustos entre mercantes y clientes. La justicia era rápida y segura. El ladrón era asesinado inmediatamente.

Antes de que el ejercito entrara en batalla, mensajeros del emperador hacian muchos viajes a la ciudad enemiga. Quizas los mensajes demandaban presos. Si las ciudades enemigas rehusaban, los mensajeros quizas trataban de sobornar al gobernante. Fallando esto, los Aztecas recurrían a desafios hacia el gobernante y su gente.

Cada vez que los mensajeros visitaban una ciudad enemiga, estudiaban las carreteras mayores y hacian un esfuerzo por contar las tropas.

Recordaban cuidadosamente donde estaban estacionados los guerreros. Los mensajeros Aztecas frecuentemente hacian esfuerzo de pagarles a los soldados enemigos para que no pelearan. Desparramaban rumores espantosos entre la gente esperando que huyeran. Si todas estas tacticas fallaban, los Aztecas se veian forzados a pelear.

Los guerreros Aztecas se movian silenciosos y rapidamente. Se dividian entre varios grupos y despues se juntaban cerca del campo de batalla.

Si era posible, los Aztecas conquistaban al enemigo, quemaban sus casas y capturaban un gran numero de prisioneros. A veces, cuando la batalla no se llevaba como ellos deseaban, capturaban cuanto prisionero era posible y se retiraban a su capital.

En Tenochtitlan nuevas de la batalla se esperaban ansiosamente. Un mensajero era despachado a la corte del emperador desde el campo de batalla. ¿Habia sido victoria o derrota? Si el mensajero entraba a la corte con su pelo

cubriendole la cara, queria decir que el ejercito Azteca habia sido derrotado. Si traia nuevas de victoria, entraba corriendo a la corte lanzando su escudo y espada al aire.

La Fuerza de la Nación Azteca

Educación

Honren y obedescan a sus padres.
Entren a sus hogares detras de sus mayores.
Respeten a sus dioses y hagan lo que ellos manden.
No roben ni defrauden.
Siempre den comida al hambriento.
Aprendan siempre buen comportamiento.
Siempre digan la verdad.

Los padres les decian esto a sus hijos repetidamente. Les decian esto mientras trabajaban en las labores o en casa. La educación para el niño Azteca empezaba en la casa. Esta educación seguia en las escuelas del estado.

Al nacer, los niños Aztecas eran dedicados al imperio. Frecuentemente, cosas pertenecientes al niño acabado de nacer eran enterradas secretamente en territorio enemigo. Los padres pensaban que esto lo atraeria alli cuando fuese hombre. Este entonces conquistaria al enemigo en batalla y tomaria muchos prisioneros, esto le trairia gran honor y riqueza.

Niñas en la Escuela

Cuando niños y niñas tenian como doce años de edad, asistian a escuelas separadas. Sacerdotisas instruian a las niñas destreza en ser hogareñas y un poco acerca de los misterios de alabanza. Escuelas Aztecas eran muy rígidas. Charlar nunca se permitia. Al caminar las niñas

a su hogar siempre eran acompañadas por un adulto. Las hacían caminar muy derechas, manteniendo sus ojos bajos. Era considerado ser muy feo modal que las niñas enseñaran el menor interés en cualquier cosa que oyeran o vieran publicamente.

Algunas de las niñas que iban a la escuela se hacían sacerdotisas, pero las más de ellas se casaban y tenían hijos. La mujer no participaba en el gobierno ni en la política.

Los Niños Aztecas en la Escuela

La educación del niño varón era requerida, más larga de duración y más rígida. Los varones se ingresaban a una de dos escuelas: La Telpochcalli (tel-poch-Kahl-lee), "Casa de Jovenes", o a la Calmecac (Kal-may-kahk) "Fila de Casas."

La salida del sol y el cantar del gallo despertaba a los jóvenes de la Casa de Jovenes. Vestidos en capas livianas, se levantaban, alzaban sus ropas de dormir y empezaban el día de trabajo. No había madre que viniera a despertar al que se quedaba dormido. Todos los jóvenes sabían el castigo por no levantarse.

La materia en las escuelas eran diferentes a las de ustedes. Quizás un día el sacerdote decidía que debían trabajar en las labores. Otro día podían pasarlo en las lomas experimentando con armas o practicando tácticas de batalla. En todo tiempo se les enseñaba la importancia

de servir a la comunidad. Eso era la verdadera medida de valor de la educación Azteca.

Algunas veces, alumnos seguian al ejercito Azteca al campo de batalla mientras que sacerdotes y guerreros los instruian sobre el arte de guerra.

Ya tarde, los alumnos regresaban a sus hogares a trabajar con sus padres y comer con sus familias. Despues de comer regresaban una vez mas a la escuela a descansar. Poco antes de la media noche todos los alumnos eran despertados. Encendian lumbres para los dioses y bailaban danzas religiosas. Cuando las danzas terminaban, eran permitidos volver a sus dormitorios y dormir hasta la madrugada. ¿Como se compara este dia de escuela con el de ustedes?

Al acercarse el dia de graduación los alumnos mayores eran llevados a pelear en batalla. No participaban como soldados regulares sino que ayudaban a cargar armas y provisiones. Eran observados con el fin de ver si comprendian la tactica de la batalla y para ver si eran listos para obedecer ordenes. Si uno de ellos le agradaba a los soldados, era permitido ingresar en el ejercito. Esta era la oportunidad con la cual muchos de los jovenes Aztecas soñaban. Ahora podia probar su merito como soldado valiente y su importancia en la nación Azteca. Era su oportunidad de convertirse en adulto. Si fallaba, sus amigos se burlaban de el y quedaba en verguenza.

Jamáz obtendría un puesto importante ni tampoco usar el traje de el Aguila ni guerrero Jaguar. Si fallaba, lo mejor que podía esperar era obtener un terreno chico para labrar.

¿Como se probaba a si mismo el joven? Se probaba tomando prisioneros durante la batalla. Si tenía éxito, se le cortaba su trenza. Así todo mundo sabía que había llegado a ser adulto.

Escuelas Para los Hijos de los Nobles

El Calmecac era la escuela para los hijos de los gobernantes y oficiales de la sociedad Azteca. Era mas rigida que el Telpochcalli. El día escolar empezaba antes de la salida del sol. Los alumnos estudiaban aritmética, el calendario, religión, gobierno, manera de cazar, arquitectura y las reglas de justicia de guerra. Los alumnos eran los futuros generales, jueces, sacerdotes, y gobernantes de la nación. Era un honor asistir a Calmecac. Los alumnos asistían a esta escuela aproximadamente ocho años. Algunos nunca dejaban la escuela. Se ingresaban como sacerdotes y instruían a otros alumnos.

Obedencia era tan importante que el desobedecer alguna regla traía la pena de muerte. ¿Pueden ustedes ver porque los alumnos hacían sus tareas bien y a tiempo? ¿Creen ustedes que ellos llegaban tarde a sus clases o fallaban en hacer sus tareas?

Ejemplo #3

Nombre: _____

Aztecas: Fundadores de Imperios

Direcciones: Contesten las siguientes preguntas lo mas completamente que sea posible.

1. Describa como empezó el Imperio Azteca.
2. Describa la creencia del Azteca sobre el fin del mundo.
3. Describa la sociedad de Tenochtitlan.
4. Describa el metodo de guerra de los Aztecas.

5. Describa a las niñas Aztecas en la escuela.

6. Describa a los niños Aztecas en la escuela.

7. Como era diferente la educación del noble a la de los demas niños?

Ejemplo #4

PATOLLI

Siempre ha sido muy divertido observar juegos y especialmente verlos. Para los Aztecas también era una cosa seria, mágica, llena de forma y ritual. Eran mas serios sobre lo que no debia de ser serio que en lo que debia de ser serio. Por ejemplo, eran mas cuidadosos y honestos en lo menos serio que cuando peleaban en guerra o sobre asuntos politicos.

Tlachtli es quizás el juego mas conocido. Era jugado en un cortejo con cestas de piedra. La pelota era de hule duro. De aquí viene nuestro juego popular de basketbal. La diferencia entre los dos es que en el juego de tlachtli los derrotados perdian su vida. Sin duda, los Aztecas tomaban sus juegos muy en serio.

Patolli era otro famoso juego Azteca. Era algo parecido a "backgammon" o "parchesi". Era jugado en una tabla marcada o en papel, usando granos de frijol para contar. La pagina anterior enseña como mas o menos era la tabla. El objeto era de viajar sobre la tabla y volver a "casa" para ganar.

Es probablemente el juego que Cortes jugaba con Moctezuma cuando este fué captivo en el palacio. Este juego tambien ha sido llamado totoque y era usado cuando se jugaba por dinero.

Habian muchos otros juegos, los mas eran jugados por los niños. Muchos de estos juegos los jugamos ahora con reglas algo diferentes y nombres nuevos.

"El Azteca: Hombre y Tribu"
Por Victor W. VonHagen

Ejemplo #5

(Vea página 73, versión en Inglés.)

Ejemplo #6

Reglas Para Jugar Patolli

El juego puede ser jugado por dos, tres, o cuatro personas. Cada jugador tiene cuatro "hombres." Los cuatro "hombres" de cada jugador son de un solo color pero de diferente color que los "hombres" de los otros jugadores. Cada jugador pone sus "hombres" en el circulo de espera situado a la derecha del circulo de empiezo. (Figura #1.)

Fig. 1

(Vea página 74, versión en Inglés.)

Cada jugador tiene un dado. Cada jugador lanza su dado para ver quien va a empezar. El jugador que saque el numero mas bajo empezará. Las movidas son hechas de la derecha hacia la izquierda. Esto quiere decir que el jugador a la derecha del que empezó le sigue, etc. Cada jugador toma su turno lanzando su dado, esperando pegarle al numero cinco. Cuando el numero cinco aparece, el jugador que lo lanzó puede mover uno de sus "hombres" al cuadro de empiezo.

Los jugadores lanzan sus dados en sucesión aunque no puedan entrar al cuadro de empiezo. Solo un cinco permite mover a un "hombre" de su circulo de espera. El jugador tiene que "entrar" todos sus hombres hasta que todos esten activos en el juego, cada vez que se lance un cinco. La unica excepción es cuando un jugador ya tiene un hombre en el cuadro de empiezo. Si el hombre es suyo, el cinco se puede usar para mover a ese hombre fuera de alli. Si el hombre es de su oponente, esto es considerado como un bloqueo, y usted no puede "entrar" a su hombre. Mientras que haya un hombre de un jugador en un cuadro con un circulo o una "X", el hombre queda libre de captura. En cualquier otra situación, si el hombre de un jugador cae en cuadro ocupado por un oponente, puede capturar al hombre del oponente y este tiene que volver al circulo de espera para volver a empezar otra vez.

Cada jugador mueve sus hombres en el sendero hacia su hogar. (Figura #2.)

Fig. #2

(Vea página 75, versión en Inglés.)

Los cuatro cuadros cerca de cada jugador constituye el hogar del jugador y su oponentes no pueden entrar allí. El jugador que meta a todos sus hombres en su hogar primero gana el juego.

Cuando se esta contando para mover, se cuentan el numero de espacios entre líneas y no las líneas mismas. El lugar o espacio de donde empieza el hombre no se cuenta al moverse hacia adelante. El hombre del oponente no se

puede capturar cuando este este en el punto de seguridad, excepto cuando el "hombre" este en el lugar de entrada de un oponente. En este caso, el oponente tiene la oportunidad de empezar a uno de sus hombres o volver a empezar a uno de sus hombres capturando al oponente que se encuentre en su lugar de entrada. Un hombre que este en un punto de seguridad puede ser pasado por cualquier otro hombre. Nadamas dos hombres pueden estar en un punto de seguridad y ambos tienen que ser del mismo color. Esto es considerado un bloqueo y no puede ser pasado por ningún jugador, ni aun por esos del mismo jugador, hasta que se deshaga el bloqueo. Si un jugador no puede mover sin pasar su propio bloqueo, tiene que deshacerlo. Dos hombres (o un bloqueo) no pueden ser movidos juntos cualquier numero de espacios. Al quebrar el bloqueo, los hombres deben moverse adelante individualmente, quedando en diferentes espacios al fin de la movida. Si un bloqueo esta ocupando el lugar de entrada de un jugador, esto prohibira que el jugador empieze o entre a su hombre. Aunque no hay regla governando el quebrantamiento de un bloqueo, no es en el mejor interes del juego mantener un bloqueo por un largo tiempo.

Cualquier lance del dado puede ser usado para avanzar un hombre o tambien se puede dividir el total del dado entre dos hombres. Por ejemplo, si un jugador saca

un seis en el dado, este se cuenta como 10 espacios, el jugador puede mover uno de sus hombres seis espacios y otro cuatro, o una combinación de movidas que alcancen a ser diez. Cuando se lanza un seis, el jugador puede lanzar otra vez en seguida. Cada uno de los numeros en los dados cuentan:

1	=	1	espacio
2	=	2	espacios
3	=	3	espacios
4	=	4	espacios
5	=	5	espacios o una entrada
6	=	10	espacios y otra lanzada consecutiva

El jugador tiene que lanzar un numero exacto para mover un hombre, ya que este haya pasado el cuadro de seguridad situado al lado del "hogar", para poder mover a su hombre al "hogar". No se puede dividir una cuenta para mover a un hombre al "hogar".

El objeto o principio mayor de los jugadores es el de capturar hombres del oponente tan seguido como sea posible y a la vez hacer todo lo posible por traer a sus cuatro hombres a su "hogar."

Ejemplo #7

(Vea página 78, versión en Inglés.)

Ejemplo # 8

(Vea página 79, versión en Inglés.)

Ejemplo #9

(Vea página 80, versión en Inglés.)

Ejemplo #10

(Vea página 81, versión en Inglés.)

Unit on: Pre-Columbian Culture
Pre-Columbian Map Games

Pre-Columbian Map Games

Preamble

In this unit the student will be given an opportunity to create an abstraction of his environment. Most map units consist of a student using an Atlas to locate a list of items upon an outline map. Thus, the actual geographical abstraction is never realized. The student would be hard pressed to recreate the abstraction, let alone be able to locate with accuracy. Therefore, this unit is designed to help the student to conceptualize the geographical entity known as Aztlan or Meso-America. By varying the amount of difficulty and the level of abstraction, this unit can be used in levels K-12.

Unit Objectives

Primary Unit Objective: The student will be able to create a cartographic abstraction of the Meso-American environment. (Specific level of completion should be added grade level.)

Secondary Unit Objective: The students will be able to identify geographic formations of the Meso-American environment and relate them to choices made by Meso-American people.

Affective Unit Objective: The students will get a feel for the land--its variety, spirit, and harmony offered to man.

Map Unit: Lesson One

Objective: The students will make a cartographical abstraction of the North American Continent. The students will be able to give rationale for how they outline and label the features they put on their maps.

Purpose: The purpose of this lesson is to create a visual image and working model to help the student conceptualize what is today called North America.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Recalling	What is a map? Discuss and place hypothetical map on blackboard.	A <u>map</u> is an abstraction of topographical reality.
Identifying Observing	What should go on a map? Show several types of maps--historical, topographic, weather, road, airways, etc. Have the class make a list of all the various types of maps they can find. Have the students classify their maps.	A map should have only what is necessary to make the point the map is trying to make--and nothing more.
Classifying		
Defining Observing Identifying	What is topography? Have the students study a relief or topographic map and make a list of features that appear.	<u>Topography</u> is the shape and form of the earth's surface.

Inquiry
ProcessQuestions and ActivitiesData, Concepts and
Generalizations

Observing
Differentia-
ting

Define techniques of illustrating elevation on a flat surface with colors and hachures marks.

Hachures marks are lines and shadow effects that give the illusion of relief on a flat surface.

Defining
Interpreting

Define the concept Projection.

A projection is the abstract layout of the real environment.

Designing
Formulating

Have the students make a relief or topographic map of North America. Use overhead projector to project basic outlines for wall maps. Use patching plaster for constructing the relief maps. Use water colors, crayons, felt pens, poster paints, etc., to color and differentiate features.

Recognizing

Label all of the features listed on the list for the game, Lugar del Primer Sol. Use Atlas for reference.

Evaluation: This lesson was very time-consuming. The students really got into the map-making projects. The variety and quality of maps produced was amazing. The wall maps proved out to be the least messy to construct and the most accurate. This lesson took ten class hours.

Map Unit: Lesson Two

Objective: The student will be able to recognize natural geographic features and formations of North America.

Purpose: To give the students a feel for the land.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Recalling	Pass out feature list and review. (List of Game #1.) Pass out	
Interpreting	rules to Map Game #1	
Analyzing	and discuss the object of the game.	
Identifying	Play Game #1 of the	
Recognizing	lesson--Lugar del Primer Sol.	

Evaluation: This lesson was fun--the students repeated it twice. The team effort was great, competition fierce.

Map Unit: Lesson Three

Objective: The students will use a topographic map of Meso-America to study the environmental choices available to Pre-Columbian man.

Purpose: The student will get a feeling for the land of Aztlan.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Recalling	What is topography? What	A <u>mountain range</u>
Observing	is a mountain range? Use	is a chain or
Identifying	some of the Relief Maps	series of mountains
	made by students to show	within a common
	what a mountain range	formation with
	looks like.	common origins.

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Observing Identifying Distinguishing	What are river valleys and intermountain basins? How are they different? Use same process as suggested for observing mountain ranges. What is an alluvial fan and playa?	<u>River valleys</u> are areas cut from mountains by rivers. <u>Mountain basins</u> are down dropped areas between mountains. They are not formed by rivers, but possess alluvial fans and playas. An <u>alluvial fan</u> is the soil dumped by a stream at the mouth of a canyon. A <u>playa</u> is the lowest point of a basin--a salt flat or lake is formed there.
Comprehending	How were the coastal plains of Mexico formed? How are the construction of the coastal plains different from that of the alluvial fans? Use transparency of each feature--have student make with acetate and grease pencil.	
Comparing Contrasting		
Observing	Looking at the relief maps, how are the highlands different from the lowlands?	
Analyzing Synthesizing	Why are jungles in Southern Mexico and deserts in Northern Mexico and Southwestern U.S.?	
Inferring Explaining Observing	Would the wheel be of much use in a mountainous land with only foot trails? Show slides of Mexico.	People use those devices that best serve their needs.
Evaluating Explaining	Why did the first Pre-Columbian cultures develop on the coastal plains and the alluvial fans of intermountain basins.	The first sites of civilization develop where the environment offers the most alternatives for development.

Evaluation: This was a long and difficult lesson (12 class hours). However, the use and re-use of the student-made materials kept interest up. The slides and

student-made transparencies also kept interest high. By constantly involving the students in the designing of each part of the lesson, content that might be considered "dry" was of high interest. The most time-consuming parts of this lesson were the discussions. The idea of cultural choice as viewed from the twentieth century was hard for the students to comprehend. They tended toward environmental determinism. The idea of feeling the land and living in harmony with it began to modify this position by the end of this lesson.

Map Unit: Lesson Four

Objective: The students will be able to identify and classify Meso-American cultural sites and formations.

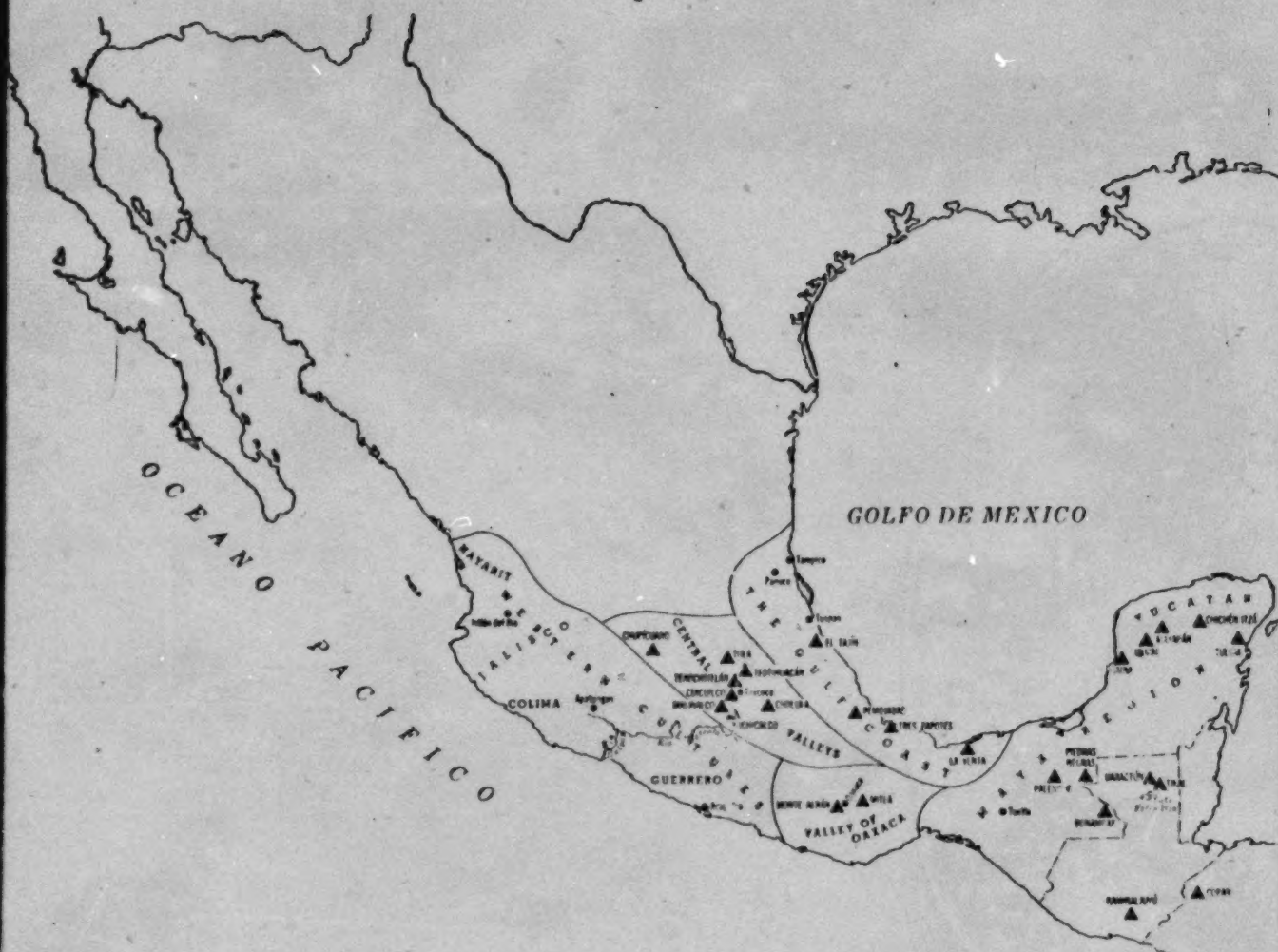
Purpose: The students will become aware of man's modification and cultural presence in Meso-America.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Applying	Pass out cultural feature list from Map Game #2 and cultural map (sample #1).	
Transferring Recognizing	Have the students transfer the sites to the maps they made in Lesson Two of this unit.	Use Longitude-Latitude grid to make accurate transfer of sites from one map projection to another projection.
Interpreting Analyzing	Pass out the rules to Map Game #2 (Jornadas del Quetzalcoatl) and discuss the object of the game.	
Identifying Recognizing	Play Game #2 of the lesson.	

Evaluating: Same response as in Lesson Two of the unit. Worked well as a summary device for synthesizing cultural and physical forces that shape our environment.

Sample #1



Ancient Mexico

Game #1

Lugar del Primer Sol

The object of the game is to get the students familiar with the natural geographical formations and cultural sites of North America.

1. The teacher is to post a large outline map of North America on the board.
2. A list of geographical places and features will be given to each student of a class.
3. As a group, they will go over these places and features, which can be broken down as follows:
 - a) Continental features
 - b) Physical features

Rules for the Game

1. A large blank outline map of North America is to be placed on the board.
2. Each of the places or features to be identified will be assigned a number which will also be numbered on a spinner.
3. The number upon where the arrow stops on the spinner, they have to identify that feature or place that corresponds to the number on the map.
4. If the feature is a physical one, they have to identify it; if it is a cultural feature, the group has to tell its significance.
5. The class will be divided into groups of 4 or 5.
6. Each of the groups are numbered.
7. To find out which group starts, each team captain from a group goes up and takes a turn hitting the spinner. The one with the lowest number starts first; the one with the second lowest, second and so forth until each group is numbered. (In case of a tie, the parties involved will have to hit the spinner again and the one with the lowest number wins.)
8. Each group will hit the spinner in turn.
9. A group will not be penalized for not knowing the answer.

10. Ten points will be given for knowing the answer.
11. Five points will be taken off for giving a wrong answer.
12. Each group will be assigned a set of colored tabs. Each group will have a different color.
13. As they identify the place or feature correctly, the team captain gets to place their tab next to the place or feature on the map.

Physical Features Formations
List for "El Lugar del Primer Sol"

- | | |
|------------------------|---------------------|
| 1. Intermittant Stream | 17. Lowlands |
| 2. Fault | 18. Plateau |
| 3. Volcano | 19. Borders |
| 4. Mt. range | 20. Straits |
| 5. Coast line | 21. Glaciers |
| 6. Intermontane Basin | 22. Continent |
| 7. Playa | 23. Ice Bridge |
| 8. Canyon | 24. Plains |
| 9. Valley | 25. Mountain fronts |
| 10. Gulf | 26. Alluvial fan |
| 11. Bay | 27. Braided stream |
| 12. Lake | 28. River basin |
| 13. Sea | 29. Delta |
| 14. Islands | 30. Tributary |
| 15. Desert | 31. Penninsula |
| 16. Highlands | |

Game #2

Jornadas del Quetzalcoat1

The object of the game is to get the students familiar with the natural geographical formations and cultural sites of Meso-America.

1. The teacher is to post a large outline map of Meso-America on the board.
2. A list of geographical places and features will be given to each student as a class.
3. As a group, they will go over these places and features, which can be broken down as follows:
 - a) Cultural features

Rules for the Game

1. A large blank outline map of Meso-America is to be placed on the board.
2. Each of the places or features to be identified will be assigned a number which will also be numbered on a spinner.
3. The number upon where the arrow stops on the spinner they will have to identify that feature or place that corresponds to the number on the map.
4. If the feature is a physical one, they have to identify it; if it is a cultural feature, the group has to tell its significance.
5. The class will be divided into groups of 4 or 5.
6. Each of the groups are numbered.
7. To find out which group starts, each team captain from a group goes up and takes a turn hitting the spinner. The one with the lowest number starts first; the one second lowest, second and so forth until each group is numbered. (In case of a tie, the parties involved will have to hit the spinner again and the one with the lowest number wins.
8. Each group will hit the spinner in turn.
9. A group will not be penalized for not knowing the answer.

10. Ten points will be given for knowing the answer.
11. Five points will be taken off for giving a wrong answer.
12. Each group will be assigned a set of colored tabs. Each group will have a different color.
13. As they identify the place or feature correctly, the team captain gets to place their tab next to the place or feature on the map.

Cultural Features
List for Game "Jornada del Quetzalcoatl"

- | | |
|--------------------|---------------------|
| 1. Jaina | 17. El Tajín |
| 2. Uxmal | 18. Valle de Oaxaca |
| 3. Mayapan | 19. Bonampak |
| 4. Chichén Itzá | 20. El Petén |
| 5. Tulúm | 21. Maya Region |
| 6. Copan | 22. Nayarit |
| 7. Kaminaljuyu | 23. Colima |
| 8. Tikal | 24. Texcoco |
| 9. Uaxactún | 25. Tula |
| 10. Piedras Negras | 26. Teotihuacán |
| 11. Palenque | 27. Chupícuaro |
| 12. La Venta | 28. Tenochtitlán |
| 13. Mitla | 29. Cucuilco |
| 14. Monte Albán | 30. Malinalco |
| 15. Tres Zapotes | 31. Xochicalco |
| 16. Remojadas | 32. Cholula |

Unit on: Pre-Columbian Culture
Meso-American Man and the Domestication of Plants
Juego de Maiz

Meso-American Man and the Domestication of Plants

Unit: Juego de Maiz

Preamble

The use of plant life around us as a food source seems such an every-day occurrence that few of us take the time to study how a plant becomes a source of food. This process is vital to all of mankind, for without it, civilization as we know it today would stop--most of us would die of starvation. While Eurasian peoples spent most of their time domesticating animals like the horse, cow, sheep, elephant, and camel; Meso-American man spent time domesticating corn, tomatoes, melons, beans, squash, potatoes, peanuts, cactus, cocoa, coffee, berries, onions, pineapples, etc. In fact, most of the plant food we eat comes from the Americas. There are some notable exceptions, like wheat, oats, barley, and grapes. Meso-American peoples even developed plants that made medicines like tobacco and dyes like Indigo. Keeping in mind that we all need food for survival, this lesson becomes relevant to all students in the classroom wherein they share a "general heritage" with the "particular heritage" of the Chicano.

By varying the vocabulary and conceptual levels, this unit can be used in grades 4-12.

Unit Objectives

Primary Unit Objective: The student will be able to synthesize five ways in which the development of Meso-American and/or present day civilizations are related to the plant domestication and controlled selection.

Secondary Unit Objective: The student will be able to analyze the concepts "cultural choice" and "ecological balance."

Affective Unit Objective: The students will internalize the value that the choices one makes as to the use of the physical environment have great effect upon cultural environment.

Maiz Unit: Lesson One

Objectives: The students will be able to classify plants as either domestic or wild. The students will be able to establish plant domestication and food sources.

Purpose: This lesson serves as background information for the game and basic conceptual framework for the lesson. The students will be made aware of plants in relation to peoples' needs.

Teaching Strategy

Inquiry Process

Recalling

Questions and Activities

What is the difference between a wild and domestic plant?

Data, Concepts and Generalizations

Wild is a plant that grows without the aid of man.

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Defining	Define each type (wild and domestic).	Domestic is a plant that needs man in order to germinate and grow.
Classifying	Have the class make a list of plants and identify which are wild and which are domestic.	
Observing	Then show slides of various plants and have class group the plants by wild or domestic.	
Identifying	How many of the domestic plants in the slides are foods?	Most foods are domesticated plants.
Defining Identifying	What is a food? What part of a plant does man eat?	The part most often eaten is the seed.
Classifying	What part of the above listed plants is most often eaten? Why?	
Evaluating		The seed has most of the proteins needed by man for survival.

Evaluation: The students did not take this lesson seriously, at first. Then, when they realized that without plants they would starve, the lesson became extremely relevant. The students began to realize that in a very real sense, they were root, leaf and seed eaters.

Maiz Unit: Lesson Two

Objectives: The students will be able to describe and identify the processes involved in plant domestication.

Purpose: The students will go through an analogized process to demonstrate the limitation that intentional and unintentional selection processes have upon setting cultural horizons.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Observing Generalizing	What is the process of plant domestication. (Use Juego de Maiz, Sample I.)	It is the conscious and unconscious selection of plants.
Analyzing	How is plant domestication related to cultural development?	
Defining Applying	What is agriculture? What is an agricultural surplus?	Agriculture is people's conscious planting and cultivating of food for people and their animals.
Defining Analyzing	What is animal husbandry? How is animal husbandry different from agriculture?	Animal husbandry is the raising of animals.

Evaluation: The game was a lot of fun--it demonstrated communication skills as well as the selection process.

Some of the results of the game were accurate and others missed the mark by a wide margin. This fact in itself demonstrated yet another reality for the diversification of culture based upon environmental alternatives. Students stated that the game made the selection process real for them. What was hard to demonstrate was that while the game took about 40 minutes, the plant domestication process took about four thousand years.

Maiz Unit: Lesson Three

Objective: The student will be able to set up a correlation between agricultural production and basic needs for the development of a civilization.

Purpose: This lesson will get the student to examine some of the basic needs of all societies and civilizations.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Recalling Applying	What is a surplus? What is an agricultural surplus? Have a class discussion wherein the relationships between dividing up the tasks of the society and the production of surplus is clarified.	An <u>agricultural surplus</u> is where a farmer produces more than his family needs. Therefore, he can feed someone else. These other persons can now do other things than far ing.
Identifying		
Interpreting Inferring Observing	How is this related to sedentarism? Discuss the idea of nomads versus farmers in a role play situation. Have the class divide into three groups. One group (4 or 5 students) will be hunters and gatherers, one group (7 or 8 students) will be corn farmers, and the last group will act as a jury. The first two groups will each present a case for their life style and the cultural alternatives they have. The jury will have to build a civilization combining the best elements of both groups.	<u>Sedentarism</u> came about in Meso-America with the appearance of a corn culture surplus.
Synthesizing Evaluating		The elements for a civilization are: writing, record keeping, city life, continuity of culture, and an agricultural surplus.

Evaluation: The question of how an equitable division of labor (especially man versus woman) was the most emotional part of this lesson. Several questions, including why people have the expected roles they presently perform were discussed. The elements necessary to form a civilization developed heated discussion in the role-playing section of this lesson. This lesson took about five hours to complete.

SAMPLE 1

Juego de Maiz

Man was basically a hunter. He was a meat eater. The number of people grew and as man's skills at hunting got better, the large animals he killed became scarcer in number. Man had to find a new food source to survive. He could use this food source to feed his animals or he could eat the food himself.

Thus, out of the need for survival, man started eating plants. At first, he just gathered the seeds, roots and leaves of wild plants. Of all the plant foods he ate, he found that the seeds of plants were the easiest to store and filled his stomach the best. Peoples in the world who still live this way are called hunters and gatherers. But even the gatherers must move on after a time, because they have eaten so much of the plants that there is no time for new wild plants to grow.

About eight thousand years ago, man ran out of new places to move to in Meso-America. He had to find a way to make plants grow. The first farmers probably noticed that some of the seeds he dropped along the path to their dwellings and around storage areas sprouted new plants. This dropping of seeds was one of the first steps of unintentional selection of the plants grown.

The second step in the process was to decide and plant the seeds in one place. But the first farmers didn't plant all the seeds. Some they saved for eating, others got dropped or lost, and some seed never was gathered in the first place. The third step in the selection process was that of all the seed actually planted, not all grew into plants. Thus, the first results from the farmer's first crops were purely chance happenings.

The object of this game is to demonstrate this process of intentional and unintentional selective process.

Corn Game -- Juego de Maiz

Demonstration of intentional and unintentional selective breeding from environmental alternatives.

1. Teacher is to select poster of stalk of corn or Pre-Columbian symbol such as Aztec Calendar.
2. Divide class into groups of 5.
3. Have each group decide who is going to see the poster, select 3 who will write up written reports from oral report of person who saw the poster and 1 person who will write up final report from 3 written reports.
4. Isolate the individuals who are to write up final report at the end by sending them out of the room or involving them in some activity that takes them away from the area in which the oral reports are being given.
5. Show the poster to those who have in fact been chosen to see the poster or art object for 15 seconds; make sure only those who are supposed to see the poster do in fact see it.
6. Give each of the groups 2 minutes to listen to the report of their representative who saw the poster. Make sure that if an actual name of poster or art object is given, the group is disqualified.
7. Those isolated members can be allowed to return to the room, after these oral reports have been given.
8. Allow 4 minutes for the 3 members of each group who are writing reports to write a paragraph regarding what they heard.
9. Isolated individuals will receive 3 written reports from the members of their group.
10. Four minutes are to be allowed for isolated individual of each group to compose a written report from the 3 reports he has received.

11. These final reports are then read by a member of each group to the class.
12. The report that is the most accurate is the winner.
13. The one that is most different represents the variety that can be developed by unintentional and intentional reporting or breeding.
14. The teacher is then to use the reports from the groups to demonstrate intentional and unintentional selective processes as they relate to the domestication of corn.

Unit on: Pre-Columbian Culture
Design Unit
(English Version)

Design Unit

Preamble

Much of the design and art as studied in schools is based upon a Western Civilization concept of art and design. Therefore, one of the basic needs for a unit such as this one is to acquaint the student with other concepts of design and form. This unit could be used at any grade level K-12.

Unit Objectives

Primary Instructional Objectives: The student will be able to construct a design using Pre-Columbian, Meso-American concepts and techniques.

Secondary Instructional Objectives: The student will be able to describe five facets of Pre-Columbian life that gave significance to their designs.

Affective Objective: The student will be able to express verbally and through application form a feeling for Pre-Columbian design.

Design Unit: Lesson One

Objective: The student will be able to construct a design with paper and paint that will use Pre-Columbian, Meso-American design concepts.

Purpose: In the use of sketching paper, graph paper, tracing paper, pencils, and paint the student will be able to get the feel of making Pre-Columbian designs with

familiar media. The designs the students make are to be used as potential patterns to paint on textiles with textile dyes.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Recalling	What is a design?	Definition of design: the combination of details or features of a picture, building, person, etc.
Observing	Class discussion based on handout (sample #1) and lecture material.	Every people have designs that are unique to their way of life.
Recalling, Observing, and Interpreting	How can we interpret these designs? First, the class views many Pre-Columbian designs. The history of each design is discussed. Then the student is asked to pick out one of the designs and write a story about the design using ideas that the design brings into his mind.	Use for this lesson Jorge Encisco, <u>Design Motifs of Ancient Mexico</u> .
Recalling, Observing, Classifying, Identifying	What is the difference between a free-hand and mathematic design? The students are asked to classify and identify the designs we have observed into free-hand and designed groups. Students then practice making geometric designs using protractors, pencils, compass.	Design can be both free-hand and pre-scribed by mathematics.
Interpreting	Students now practice making free-hand designs.	

Evaluation: Student interest was keen. Some of the concepts involving life-style were difficult to put across. At least four hours are needed to complete this lesson. Possibly up to ten hours could be used. Students desired to take the materials home. This would have been possible except we were going to use the basic designs they made in the next lesson.

Design Unit: Lesson Two

Objective: The student will refine and modify his design to his satisfaction. Then transfer the design to textiles with textile dyes.

Purpose: To get the student to evaluate his own work and to allow the student to work in a new medium.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Interpreting	If your design doesn't say what you want it to, what changes do you have to make so it will?	<u>Beauty</u> is what is beautiful to you.
Comparing	Do you like your first or second design best?	<u>Meaning</u> in art is what you make it to be.
Observing	A class demonstration on how to use textile dyes is done before the class. Cut 18" square pieces of unbleached muslin for each student. Tack a $\frac{1}{4}$ " dowel on two opposing edges of the material. Trace the desired pattern upon the muslin. Apply the dye.	Instructions on how to apply dye.

Evaluation: Most of the students liked their second designs best - some even wrote down myths to go with their designs. This might be a good place for planting the seed for a myth unit.

Design Unit: Lesson Three

Objective: The student will make a Pre-Columbian styled design on textile with textile dyes.

Purpose: To make a permanent design that is personalized to the student and that he may take home.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Recalling	How are dyes applied to textiles?	There are many ways to apply dye.
Applying	The process is reviewed once again and the students are given small pieces of muslin to experiment with.	Use the method that will work best for your design.
Applying	Students transfer their design to the textile and apply the dyes. The textiles are then hung to dry.	

Evaluation: This lesson takes two to three hours. The students generally achieved results beyond their own expectations. They brought friends in from other classes to see their work.

Design Unit: Lesson Four

Objectives: The students will evaluate their own work as well as that of their classmates in a written and oral form.

Purpose: To find out how the lesson itself might be modified to meet the students needs. To find out what each student gained from the lesson.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Identifying Recalling	What standards should we use to evaluate our work? The class makes a list of standards.	To <u>evaluate</u> something is to measure it.
Recalling Identifying	What did you like best and/or least about this lesson? The class writes a short essay about the lesson.	
Interpre- ting	What things about this lesson would you do differently? Verbal discussion put on tape by committies and reviewed by the class.	
Interpre- ting	What things would you do different about your own design <u>if</u> you wanted to change it? Each student writes a short essay.	Likes and dislikes are always changing. What you like today, you may not like tomorrow.
Recalling	What do you think about Pre-Columbian design and art now that we have finished our designs? Class discussion.	

Evaluation: The class discussion was lively with almost all the students participating. Most students commented that they would like to have made more than one textile design--possibly a free-hand and a geometric design as well--maybe this could be incorporated into a

math lesson. Most students were amazed with the variety of designs and colors. Most students were pleased with their own designs exactly like they were. (Evidently their tastes are more stable than I thought.) The students felt that Pre-Columbian design was really very "modern" and should be used more often.

SAMPLE I

BACKGROUND: DESIGNS FROM ANCIENT CULTURES OF MEXICO

The designs we are going to work with are from the ancient Indian cultures of Mexico. The first inhabitants of North America were from Asia and came here by the Bering Strait. Some of the designs are from stamps that the Indians made out of baked clay. The designs they put on these stamps were hand modeled. The Indians used these stamps later to decorate pottery, or to decorate skin, cloth or paper.

The Indians had a great variety of dyes. They got their dyes from smashing plants, from minerals in rocks and earth, and from animal sources, like smashed bugs.

The designs for these stamps were at first mostly geometric designs. Later, the Indians used designs from nature, like the plants and animals. The Indians designed human figures too, which were also geometrical in form. Eventually, the Indians developed symbols for things, like the symbol for smoke.

The stamps are just one of the sources of design we have. In Ancient Indian art, there is a great variety of subject matter, materials and techniques used. In most of the designs, we find natural subjects, interpreted in simplicity. Many of the designs are symbols of religious myths. We can also see a rhythmical repetition of motifs, like the picture of the wall at the Mitla ruins.

The Ancient Indians were also great architects, sculptors, potters and painters. We get some designs from these art forms also. Some of the most outstanding Indian groups in art were: the Tarascan, Totonac, Maya, Teotihuacan, Toltec, Zapotec, Mixtec and Aztec. We can locate on a map of Mexico approximately where these groups were established.

Ceramic sculpture dominates Tarascan art. They depicted life and animals. Their art shows extreme simplification, but retains natural appearance.

The Totonacan art is dominated by stone sculptures of sacred images.

Mayan art is famous for its sculpture, mural painting, architecture, and ceramics. Most of their art is done in a "base-relief" style. This style is a two-dimensional art form.

Teotihuacan art is most noted for its pyramids, murals and ceramics.

The Toltecs are famous for their architecture and funeral urns.

The Aztecs had an unparalleled quality of architecture. They were also unrivaled in sculpture. The Aztecs also made ideal geometric forms.

Unit on: Pre-Columbian Culture

Unidad de Dibujo

(Versión en Español)

Unidad de Dibujo

Preámbulo

Mucho del dibujo y el arte que se estudia en la escuela está basado en el concepto de arte y dibujo de la civilización del oeste. De modo que una de las necesidades básicas de esta unidad es de familiarizar al alumno con otros conceptos de dibujo y forma. Esta unidad se puede usar en los grados k-12.

Objetivo de la Unidad

Objetivo Instructivo Primario: Los alumnos podrán construir un dibujo usando conceptos y técnicas Precolombinas y Meso-Americanas.

Objetivo Instructivo Secundario: Los alumnos podrán describir cinco facetas de la vida Precolombina que dio significancia a sus dibujos.

Objetivo Afectivo: El alumno podrá expresar un sentido por el dibujo Precolombino oralmente y por el uso de forma.

Unidad de Dibujo: Lección una

Objetivo: El alumno podrá construir un dibujo con papel y pintura, donde usará conceptos de dibujos Precolombinos y Meso-Americanos.

Intención: Con el uso de papel trazante, papel gráfico, papel transparente, lápices y pintura, el alumno podrá adquirir un sentido para hacer dibujos

Precolombinos con medios conocidos. Los dibujos que los alumnos hagan serán vistos como patrones que posiblemente se usaran en textil con tinte de textil.

Estrategia de Enseñanza

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Recordando	Que es un dibujo?	Definición de dibujo: La combinación de detalles o semblantes de una pintura, edificio, persona, etc.
Observando:	Discusión en clase basada en ejemplos escritos y distribuidos a la clase (ejemplo #1) y los discursos de la maestra.	Dibujo puede ser a mano libre y prescrito por la matemática.
Recordando, Observando e interpretando.	Cual es la diferencia entre dibujos hechos a mano libre y los matemáticos? Se les pide a los alumnos que clasifiquen y identifiquen los dibujos que han visto en una de las dos categorías. Luego los alumnos practican haciendo dibujos geométricos usando trazadores de ángulos, lapices y compases.	
Interpretando	Los alumnos ahora practican haciendo dibujos en mano libre.	

Evaluación: Los alumnos se interesaron muchísimo. Algunos de los conceptos que tratan con modos de vivir fueron difíciles de explicar. Por lo menos se necesitan cuatro horas para completar esta lección. Posiblemente hasta diez horas se podrían usar. Los alumnos querían llevarse sus materiales a casa. Esto hubiera sido posible pero íbamos a usar los dibujos que hicieron en la siguiente lección.

Unidad de Dibujo: Lección Dos

Objetivo: El alumno refinará y modificará su dibujo a su gusto. Después cambiará el dibujo a textiles con tintes de textiles.

Intención: La intención es de conseguir al alumno que evalúe su trabajo y para permitir al alumno a que trabaje con medios nuevos.

Estrategia de Enseñanza

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos Generalizaciones</u>
Interpretando	¿Si su dibujo no representa lo que usted quiere, que cambios debe hacerle para corregirlo?	Cada individuo da sentido a su arte.
Comparando	¿Cual de sus dibujos le gusta a usted mas, el primero o el segundo?	Hermosura es lo que es hermoso para usted.
Observando	Una demostración de como usar los tintes textiles es dada a la clase. Cortense pedazos cuadrados de 18" para cada alumno.	

Asegurese un $\frac{1}{4}$ " en cada orilla y abajo del material. Tracese el dibujo deseado en la manta. Aplíquese el tinte.

Evaluación: A los mas de los estudiantes les gustaron mejor sus dibujos segundos. Algunos escribieron mitos para sus dibujos. Esta sería una buena oportunidad para sugerir la creación de una unidad en mitología.

Unidad de Dibujo: Lección Tres

Objetivo: El alumno hara un dibujo estilo pre-colombino en textiles con tintes textiles.

Intención: Hacer un dibujo que sea personalmente del alumno para que se lo lleve a su casa.

Estrategia de Enseñanza

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Recordando	¿Como se aplica el tinte al textil?	Hay muchas maneras de aplicar tinte.
Aplicando	El proceso es revisado una vez mas y se les da a los alumnos pedazos de manta para que practiquen.	Use el método que mejor sirva para hacer su dibujo.
Aplicando	Los alumnos cambian su diseño al textil y le aplican tinte. Los textiles se cuelgan a secar.	

Evaluación: Esta lección se toma de dos a tres horas. Generalmente los alumnos tuvieron resultados buenos inesperados. Trajieron amigos de otras clases para que vieran sus esfuerzos.

Unidad de Diseño: Lección Cuatro

Objetivos: Los alumnos haran una evaluación de su trabajo y de la de sus compañeros de clase en forma oral y escrita.

Intención: Para descubrir como la lección puede ser modificada para el beneficio de los alumnos.
Para descubrir que aprendió cada alumno de la lección.

Estrategia de Enseñanza

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Identificando, Recordando	¿Que meta debieramos usar para evaluar nuestro trabajo? La clase hace una lista de estandartes.	Una evaluación es una medida.
Recordando, Identificando	¿Que fue lo que le gusto mas, o menos de esta lección? La clase escribirá un corto ensayo sobre la lección.	
Interpretando	¿Que haria usted diferente en su dibujo si lo quiciera cambiar? Cada alumno escribe un corto ensayo sobre esta pregunta.	El gusto siempre cambia. Lo que le guste ahora quizás no le guste mañana.
Recordando	¿Que opinan ustedes sobre el dibujo y el arte Precolombino ahora que hemos terminado nuestros dibujos? Sigue una discusión en la clase.	

Evaluación: La mas de la clase participó con ganas en la discusión. Los mas dijeron que quicieran haber hecho mas de un dibujo en textil, quizás uno a mano libre y otro geométrico. Quizás parte de esta lección se pudiera incorporar con una en matemática. Los mas de los alumnos quedaron sorprendidos con la variedad de dibujos y colores que se obtuvieron. Los mas de ellos quedaron satisfechos con el resultado de sus dibujos. (parece que sus gustos son mas estables de lo que yo me imaginé). Los alumnos piensan que el dibujo Precolombino en realidad es muy moderno y que se debiera usar mas seguido.

Ejemplo # I

Fondo: Dibujos de las Culturas Antiguas de México

Los dibujos que vamos a usar son de las antiguas culturas indias de México. Los primeros habitantes de Norte America eran de la Asia y vinieron aqui por el Estrecho Bering. Algunos de los dibujos son de sellos que los indios hicieron de barro seco. Los dibujos que pusieron en estas láminas fueron modeladas a mano. Los indios despues usaron estas láminas para decorar su alfareria, o para decorar cueros, tela o papel.

Los indios tenian una gran variedad de tintes. Tomaron sus tintes de plantas machacadas, minerales de piedras, tierra y de origen animal, como bichos machacados.

Los dibujos para estos sellos eran, al principio, geométricos. Despues, los indios usaron dibujos de la naturaleza en forma de plantas y animales. Los indios tambien dibujaron figuras humanas que tambien eran en forma geométrica. Eventualmente, los indios desarrollaron simbolos para las cosas, como el simbolo del humo.

Los sellos son nada mas un ejemplo de dibujo que tenemos. En el arte indio antiguo, hay una gran variedad de temas, materiales y tecnicas. En la mayoria de los dibujos encontramos temas naturales sencillamente

interpretados. Muchos de los dibujos son simbolos de mito religioso. Tambien podemos ver una repetición ritmica de motivos como las pinturas en las paredes de las ruinas de Mitla.

Los indios antiguos eran gran arquitectos, escultores, alfareros y pintores. De estas formas de arte tambien tomamos muchos dibujos. Los grupos mas sobresalientes en arte eran los Tarascos, Toltecas, Mayas, Teotihuacanos, Totecas, Zapotecas, Mixtecas y los Aztecas. Podemos identificar donde se establecieron estos grupos en un mapa de México.

La escultura ceramica domina el arte Tarasco. Ellos representaban la vida de los animales en sus dibujos. Su arte demuestra una sencillez extrema pero retiene la apariencia natural.

El arte Totanaca es dominado por la escultura pedregal de imagenes sagradas.

El arte Maya es famoso por su escultura, pinturas murales, arquitectura y ceramica. La mayoria de su arte lleva un estilo "base-relief". Este estilo es una forma de arte de dos dimensiones.

El arte Teotihuacano es notado por sus piramides, muros y ceramica.

Los Toltecas son famosos por su arquitectura, pintura, mosaicos y trabajo de plumas.

Los Zapotecas y Mixtecas son conocidos por su arquitectura y jarros fúnebres.

Los Aztecas tenían una calidad de arquitectura y escultura sin igual. Los Aztecas también hacían formas geométricas ideales.

Unit on: Pre-Columbian Culture
Mythology
(English Version)

Mythology Unit

Preamble

This is a language arts unit that will explore innovative methods in the presentation of each student's materials. These formal presentations could take the style of non-verbal communication (dance, pantomime, etc.), graphic communication (art, diagrams, puppeteering, etc.), and verbal styles (story-telling, drama, etc.). The idea behind the unit is to get the students to realize that mythology is very much a part of all cultures and that myths weren't just written by the Greeks and Romans. The unit is so designed that the student doesn't have to be a "verbal" person to present his material. Many forms of expressions are just as important as the written form.

Unit Objectives

Primary Instructional Objectives: The students will be able to create a myth of their own after studying Pre-Columbian, Meso-American myths.

Secondary Instructional Objectives: The students will experiment with various styles of formal presentations. Each student will make a class presentation in a style not previously used, at a level acceptable for formal presentations.

Affective Objectives: The student will gain, through the expression of his presentation, a feeling of identity with Pre-Columbian man's thought patterns and innermost feelings.

Mythology Unit: Lesson One

Objective: The student will be able to define a myth by reading and/or discussing several Pre-Columbian myths.

Purpose: The student must know what a myth is before he can make one. Many students may think that a myth is just a fancy lie. This notion has to be corrected.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Identifying	What is a myth? Start off the class by reading several myths, or even make up a myth about a person in the class. Use Irene Nicholson's, <u>Mexican and Central American Mythology</u> , and Helen Bauer's, <u>California Indian Days</u> .	Many peoples use myths to explain the "unknown."
Recalling, Classifying	Class discussion: How many different types of myths can you think of? Use for discussion the number of different types of myths presented by Nicholson in her book. Have the class make a list of different myths. Have each student make a critique on one of the myths from the list designed by the class.	Different myths have different purposes.

Evaluation: Several students participated by telling myths told to them by their parents. The class found most

of the Pre-Columbian myths fascinating. This lesson took three class hours.

Mythology Unit: Lesson Two

Objective: The student will design a myth and present it to the class in a method best suited to him.

Purpose: To allow the student to express himself through the medium of a mythical tale.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Recalling	What is the difference between myths and history? Review what is meant by a myth.	Both history and myths may have basis in reality but history is supposed to be a record of that reality and the myth is an interpretation of that reality.
Observing	Present to the students several methods of presentation. The first would be the traditional written form that would be read to the class. Another would be the construction of a "filmstrip" made either of slides or strips of paper in scroll form with a minimum of ten frames. (Captions could accompany each frame or slide.) Yet another group could make transparencies and make a presentation on an overhead projector. A fourth form of presentation might involve several students in the construction and presentation of a skit or short play. The last form would be the recording of a myth by a student on a tape for presentation or for narration of one of the previous forms.	

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
	The students pick a form and set about designing their myths and presentations.	
Observing Applying	Presentation to the class of various myths designed by members of the class.	
Classifying	The students are asked to classify and evaluate each myth as it is presented to the class.	

Evaluation: The variety of myths sparked by the Pre-Columbian material was fantastic. Methods of presentation were also of several varieties. One presentation incorporated all the forms suggested. The student evaluation of each myth told as much about the evaluator as the student being evaluated. The construction of each myth varied from three to five class hours. Some students participated in the design of more than one myth.

Mythology Unit: Lesson Three

Objective: The student will be able to identify the common elements between mythology to both design and abstract thought.

Purpose: To get the student to relate the Pre-Columbian numerology, design symbols, and philosophic thought to mythology.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Identifying Recalling	What are the common elements between mythology and Pre-Columbian art? Class discussion incorporated with panel discussion that is developed out of small group sessions.	Myths and art are both creative forms of expression.
Identifying Recalling	What common features can be found in Pre-Columbian mathematics and Pre-Columbian mythology? (Refer to Nicholson's work on mythology.) Four students prepare an answer to questions for extra credit and present their findings to the class.	Pre-Columbian mathematics was based on mythological concepts.
Interpreting	How is Pre-Columbian mythology related to Pre-Columbian thought? The class re-studies the myths of Meso-America to see if there are common philosophical concepts in them. The class then discusses if these concepts can be classified.	A man's philosophy is the basic thought patterns and rationale for his life style.

Evaluation: This last lesson can only be used on a superficial level for any class below the eight grade. The ninth graders who worked on this lesson really seemed to enjoy it and got into some good rap sessions, even though they found themselves in deep conceptual waters.

Unidad sobre: La Cultura Precolombina
Mitología
(Versión en Español)

Unidad Mitológica

Preámbulo

Esta unidad en el arte de lenguaje explorará métodos nuevos en la presentación de materiales por los alumnos. Estas presentaciones formales pueden ser en estilo de comunicación no-oral (danza, pantomima, etc.), comunicación gráfica (arte, diagramas, marionetas, etc.), y estilos orales (cuento relatado, drama, etc.). El propósito de la unidad es para que los alumnos se den cuenta que la mitología es una parte muy íntegra de todas las culturas y que mitos no fueron escritos nadamas por los Griegos y los Romanos. El diseño de esta unidad es tal que el alumno no necesariamente tiene que ser oral para presentar su material. Muchas formas de expresión son tan importantes como la escrita u oral.

Objetivo de la Unidad

Objetivo Instructivo Primario: Los alumnos podrán crear un mito después de estudiar mitos precolombinos de Meso-América.

Objetivo Instructivo Secundario: Los alumnos experimentarán con varios estilos de presentación. Cada uno hará su presentación en una forma original no usada previamente y a un nivel aceptable de una presentación formal.

Objetivos Afectivos: Por medio de la expresión de sus presentaciones, el alumno aumentará su sentido de identidad con los procesos de pensamiento y los más íntimos sentimientos de el hombre precolombino.

Unidad Mitológica: Lección Una

Objetivo: El alumno podrá definir un mito leyendo y discutiendo varios mitos precolombinos.

Intencion: El alumno debe saber que es un mito antes de crear uno. Muchos de los alumnos pensarán que un mito no es mas que una mentira elegante. Esta noción tiene que ser corregida.

Estrategia de Enseñanza

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Identificación	¿Que es un mito? Empieze la clase leyendo varios mitos o compóngase un mito sobre una persona en la clase. Use, <u>Mexican and Central American Mythology</u> , de Irene Nicholson y <u>California Indian Days</u> de Helen Bauer.	Mucha gente usa la mitología para explicar lo desconocido.
Recordando Clasificando	Discusión en clase: ¿De cuantos tipos de mitos puede pensar usted? Para la discusión use los diferentes tipos de mitos presentados por Nicholson en su libro. Requiera que la clase haga una lista de diferentes mitos. Requiera que cada alumno haga una critica de la lista presentada por la clase.	

Evaluación: Varios de los alumnos participaron recordando mitos relatados a ellos por sus padres. La mas de la clase encontró los mitos facinantes. Esta lección tomo tres horas de clase.

Unidad Mitológica: Lección Dos

Objetivo: El alumno diseñara un mito y lo presentará a la clase de una manera mejor adecuada para el.

Intención: La intención es permitir al alumno a expresarse por medio de un cuento mitológico.

Estrategia de Enseñanza

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Recordando	Cual es la diferencia entre mito e historia? Repase el significado de mito.	Ambos historia y mito tienen base en la realidad pero en la historia se supone que es el registro de la realidad, y el mito es una interpretación de esa realidad.
Observando	Dé a conocer a los estudiantes varias maneras de presentación. La primera seria la forma tradicional, o sea escrita, la cual seria leida a la clase. Otra seria la construccion de una "tira de pelicula" hecha de transparencias o tiras de papel en pergamino con un minimo de diez marcos. (Titulos acompañan cada marco o transparencia.) Otro grupo puede hacer transparencias y su presentacion por medio de el proyector. En la cuarta forma pueden participar varios estudiantes en la construcción y presentación de una satira breve o drama corto. La última forma seria el grabar en cinta un mito por un estudiante y usarlo acompañando a uno de los otros métodos. Los estudiantes escogen la forma y lugar para diseñar sus mitos y presentación.	

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Observando	Presentación a la clase de los varios mitos diseñados por los miembros de la clase.	
Aplicando		
Clasificando	Se les pide a los estudiantes que clasifiquen y evalúen cada mito cuando se presenta en la clase.	

Evaluación: A consecuencia de el material precolombino, la variedad de mitos creados por los estudiantes fue fantástica.

Unidad Mitológica: Lección Tres

Objetivo: Que el estudiante pueda identificar los elementos comunes entre la mitología a ambos diseño y pensamiento abstracto.

Intención: Que el estudiante relacione la numerología, símbolos de diseño y pensamientos filosóficos precolombinos a la mitología.

Estrategia de Enseñanza

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Identificando	Cuales son los elementos comunes entre la mitología y el arte precolombino?	Ambos mitos y arte son formas creativas de expresión.
Recordando	Discusión en clase que incorpore los temas producidos en los grupos pequeños.	

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Identificando Recordando	¿Cuales son los caracteres comunes hayados en las matemáticas y la mitología precolombina? (Refierase al libro de Nicholson sobre la mitología.) Requiera que cuatro estudiantes preparen la contestación a la pregunta y presenten a la clase. (Se les da extra credito.)	Las matemáticas precolombinas fueron basadas en conceptos mitológicos.
Interpretando Clasificando	¿Como es la mitología precolombina relacionada al pensamiento precolombino? La clase repasa los mitos de Meso-America para ver si hay conceptos de filosofía común en ellos. La clase entonces discute si estos conceptos pueden ser clasificados.	La filosofía de el hombre es el patrón basico de pensar y exposicion razonada de su estilo de vida.

Evaluación: Esta última lección se puede usar de una manera y nivel superficial para clases bajo de el 8^{vo} grado. Los estudiantes de el 9^{no} grado que estudiaron esta lección parecían gozarla y hubo mucha discusión aunque se encontraban en conflictos conceptuales de vez en cuando.

Unit on: Pre-Columbian Culture

"Atl Atl"_{TM} Unit

Preamble

The following unit that is centered around a motivational device entitled, "Atl Atl"TM is designed specifically with cross-cultural education in mind. When used in conjunction with a game like chess or checkers, the differences and similarities between the conceptual thought systems of the Western European Man and the Native American become readily apparent. Field testing has demonstrated that due to the complicated rules and the multiplicity of conceptual styles developed in this lesson, it was not as successful with students in grades 7-9 as it was with students in grades 10-12. The lesson went over better with boys than girls. The teacher can either incorporate this lesson and game into the Patolli styled unit or follow the lesson structure that follows. The teacher could add to this lesson by using strategy games from other cultures.

Unit Objectives

Primary Instructional Objectives: The students will be able to make three cross-cultural contrastive statements and comparative statements regarding the relationships of Native American cultures to Western European cultures.

Secondary Instructional Objectives: The students will be able to analyze the concept of cultural relativity. The students will learn how to play the strategy games of at least two different cultural groups.

Primary Affective Objective: The students will become aware of enculturative processes of societies other than their own.

Secondary Affective Objective: The students will gain an appreciation for cultures other than their own.

Atl Atl Unit: Lesson One

Objective: The students will study the structure of European feudal societies.

Purpose: The student will receive the background in this lesson needed to understand the enculturative value systems and strategy thought process in the game of chess.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Defining	What is a feudal society?	Political Science deals with the distribution of power.
Analyzing	How does the feudal society distribute power and wealth? Readings on power and wealth are to be applied to first question.	Economics deals with the distribution of wealth.
Inferring	Panel discussion on: Was the feudal society stratified? If so, how?	A society is stratified when there is more than one class or level of people.
Classifying Identifying	Have the students list the various roles of the different groups in a feudal society.	
Analyzing Contrasting	Class discussion on how feudal societies conducted warfare.	

Evaluation: Students participated by recalling their conceptual view of a feudal society in terms of the movies on the "late-late show." Applying contrastive analysis to such a "dry" subject, proved to motivate the students.

Atl Atl: Lesson Two

Objective: The students will learn the rules of chess and experiment in applying those rules in a gaming situation. The students will be able to identify five of the components of feudal European societies that are built into chess.

Purpose: To allow the students to apply theory to a gaming situation. To put the game in its social-historical context.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Observing	Pass out the rules for playing chess (not supplied in this unit). Have students watch the game being played. How are the moves of the pieces and the strategies of the players related to European feudal society?	The strategies of chess are infinite.
Inferring	How are the pieces representative of the real situation?	Games are extensions of reality.
Analyzing	Have the students pair off and try to play the game, using basic rules.	
Applying	Relate your strategies to a plan of warfare.	
Synthesizing		

Evaluation: Most of the students were more into the observation part of the lesson than the actual playing of the game. A classroom period is almost too short for the playing of the game. The idea of using chess as a strategy game seemed to elevate interest in the game. This lesson took four class hours.

Atl Atl Unit: Lesson Three

Objective: The students will make three comparative statements regarding cultural similarities of European and Meso-American peoples. The students will make three contrastive statements. The students will be able to give a basic definition of cultural relativity.

Purpose: This lesson will give background for the game Atl Atl and make an attempt at breaking down ethnocentric thought patterns.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Defining Identifying	What is a culture? Class discussion on the basic survival elements in a culture.	A people's culture are those learned solutions to problems found in their total environment.
Defining Recalling Interpreting	What is ethnocentrism? How is it displayed?	Ethnocentrism is where individuals put their culture above all other life styles.
Comparing	Present background material on Atl Atl. How is Meso-American solutions similar to European ones?	

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Contrasting	How are they different?	
Synthesizing	Where are there possibilities for synthesis of the cultures?	
Analyzing		
Evaluating	What is cultural relativity? Give three statements that demonstrate relativistic perspective when studying a cross-cultural situation.	No culture is better or worse, primitive or advanced than any other culture.
Applying		

Evaluation: This lesson provoked the most heated discussions of the unit. Many students displayed open aggression and defensiveness. This lesson needs about five hours to complete. If the time is shortened, valuable input of less aggressive students may be lost.

Atl Atl Unit: Lesson Four

Objective: The students will learn the rules for Atl Atl. The students will apply those rules in a game situation. The students will identify at least five of the components of Meso-American culture that are built into Atl Atl.

Purpose: To allow the student to apply theory to a gaming situation. To put the game in its social-historical context.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Interpreting Recognizing	Read the rules of Atl Atl What is the basic strategy of the game? Discuss the rules and their meaning.	Playing strategies of Atl Atl are infinite.
Observing	Set up the game board next to a board of chess. How are they different?	Chess is an offensive styled game. Atl Atl is a defensive styled game.
Analyzing	What cultural traits might relate to the difference.	
Analyzing Inferring Observing	How is the placement of the figures on the board related to Meso-American feelings about war?	Games are a scaling down of the realities of life.
Applying	Play the game of Atl Atl. Divide the class into groups of two. Have each pair of students use a chess set and place the figures in their Atl Atl starting positions.	

Evaluation: This lesson was the most difficult in the unit. Students were constantly receiving "cultural interference" from their knowledge of chess. They found it hard to stay with the game and its cultural framework. Even so, there was great student interest in trying to complete the game and understand the meaning behind the various strategies of the game.

Atl Atl Unit: Lesson Five

Objective: The students will compare and contrast the game of chess and Atl Atl.

Purpose: To study the "scaling down" mechanisms of a society and to compare and contrast enculturative styles of the two groups.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Observing	The students will set up both games. They will watch the best players at each game play the games. The students	The game is a "scaled down" model of activities in the real world.
Classifying	will classify the strategies employed according to cultural attributes.	Many of the strategies of Atl Atl are the reverse of the strategies of chess.
Identifying Inferring	This will check how each game identifies realities of the culture.	
Synthesizing	The students will analyze how each game is used as an enculturative device in their respective culture.	An enculturative device is a formal and/or informal tool for consciously transmitting culture from one generation to another.
Evaluating	They will re-discuss cultural relativity.	

Evaluation: The classes responded well to this lesson, especially the tournament situation used to find the best players. An overhead projector was used to play the championship games so the whole class could participate. The students got more into the games as their skills at manipulating the game strategies increased. When observing the games in a well played situation, the students stated that the cultural factors seemed to "leap" right out at them. Several students suggested that units based upon making figures for the games should be planned.

Background to Game - Either for teacher use,
or as possible student hand-out, grades 9-12.

PART ONE

Warfare Among Pre-Columbian Peoples

The weapons of the Pre-Columbian warriors fall into to general categories; offensive and defensive weapons. Among the offensive weapons was the bow and arrow. The arrows carried in quivers were pointed with flint or the sharp teeth of fish. The body of the arrow was of a very slender reed to which the head is fastened by string. To this piece, a point is attached. Some arrows were poisoned. Poison was also used on darts and the points of clubs. The bow was made of beautiful tawny wood that was more straight than curved and the string was of hemp. It was usually a little less in length than the person using it.

Another weapon was the metal. It was probably made of some type of copper alloy, something like we call brass. This weapon (Fig. 1) served a dual purpose of both as a weapon and as a tool to carve the wood necessary for other weapons. Not all the weapons came into usage in one historical time period. They evolved after many years and, no doubt, through the influence of many cultures.

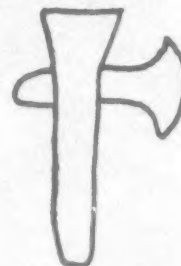


Figure 1

The principal weapon of the Pre-Columbian peoples was the atlatl, or spear thrower, and if we accept the accounts of early Spanish eye-witnesses, it was a most effective weapon. There are a few instances where the atlatl has been included in the warriors equipment without any spears. This might appear to make the atlatl useless, but this weapon had many uses. The atlatl (Fig. 2) was used as a symbol of authority. The forked end could easily be used as a sealing hook in climbing walls during an attack. The atlatl underwent the same style of ornamentation as did the other weapons, even to the point of rendering it useless as a weapon of war. (Fig. 3) The spears that accompanied the atlatl were kept straight in flight by their weight. Some of the lighter spears used feathers to guide them. The length of the average atlatl is 10-18 inches.

The most universal weapon was the spear, and one of the most elementary type was just a sharpened stick with barbs at the end. Later on, spears like Fig. 4, which had points of well chipped flint or obsidian fastened to the shaft by some type of wrapping. Below

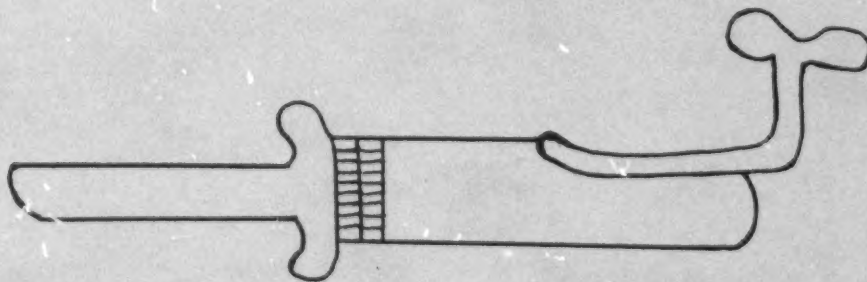


Fig. 2

the main point were saw-like projections, which ended 12 inches below the head, and under this is a bunch of

feathers. This style is modified in different areas by the shortening of the saw-tooth portion. In some of the spears, the barbs were made from shark's teeth set into the edges of a wooden blade. "These swords were carried suspended from the wrist by a leather thong so that they could not be snatched out of their owners' hand in combat."¹



Fig. 3 - Quetzalcoatl with ceremonial atlatl.

When the spear was used as a ceremonial instrument, it was

decorated and made differently. (Fig. 4 and 5)

"Undoubtedly, the macuahuitl was the most effective hand-to-hand weapon against the armor-clad Spaniards, and the more lightly-armed tribesmen. It must have been capable of producing frightful wounds."²



Fig. 4



Fig. 5

The word macuahuitl is the Nahuatl name, as the original Maya name for these weapons is not known. The usual construction of this weapon was of zapote wood because of its heavy weight and strength. A few were made of pine or oak. Long pieces of razor sharp obsidian were set in and fastened to the club by lashings or gum. An interesting side note is that this gum was made from a root called cacotl and a hard blue clay called teuxalli. These two items were mixed and kneaded together with bat blood. The standard types of macahuitl are shown in Fig. 6. One other variation was used in a dance described below in which the club was adorned with feathers rather than obsidian blades.

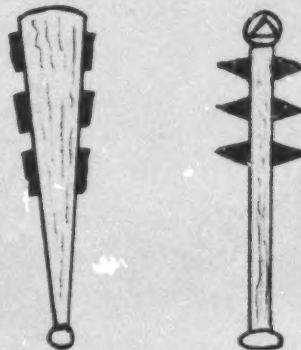


Fig. 6

"In one dance that was to please the war gods, there were two groups of warriors. One consisted of prisoners of war and they were given wooden weapons (with feathers) and the other group had the real type of weapons. The battle was fierce and many died, but the survivors were not allowed to live anyway, as they were all sacrificed."³

The macuahuitl was a sort of secondary weapon for the Maya. It was mainly used when the supply of spears, darts and sling stones had been exhausted. In a mural at the Great Ball-Court in Chichen Itza, there is a battle scene where a soldier is carrying a bundle of war clubs on his back. Hatchets and other single bladed war clubs were also used.

The knife was used as a weapon by priests. Its main purpose was to sacrifice victims. A modification of the knife was carried by the warrior called a claw-knife. (Fig. 7a) The apparent association of the claw-knife with the Jaguar-man seems to indicate the possibility of some sort of sacrifice in an imitation of jaguars' method of killing.

Slings were rather generally used and were an effective weapon. They consisted of some type fibre and held a stone about the size of a chicken egg. The Maya also used large stones which were cut out to fit the fingers of a man's hand. These stones were thrown like hand grenades at the enemy. (Fig. 7b).



Fig. 7a



Fig. 7b

Another weapon was a kind of dart with a string attached, sort of like a harpoon. The soldier throwing

the dart held the string and threw the dart and then tugged. Boomerangs were used but not to a very great extent. The blow gun was sometimes used as a weapon, but its main use was for hunting animals.

The Maya had a rather unique "grenade". The Mayan warriors would throw hornets' nests into besieged houses and cities. The only problem that the Mayas had with this "grenade" was that the Mayan ammo bearer had trouble in keeping the "grenade" from going off prematurely.

Defensive weapons consisted mainly of shields and helmets. Some shields were made of reeds which were split and woven (Fig. 10). This type was round in shape and covered with deer skin. The soldiers wore short jackets of quilted cotton that was stuffed with coarse salt. The warriors carried long shields that were body-length and could be folded or rolled up and carried under the arm when not required.

Defensive hardware included shin guards and arm guards. The head was protected by a helmet of some type. This average soldier's helmet was made of a type of quilted fabric cap, (Fig. 8) while the officers or others who could afford to wear very elaborate ones of wood. In the later times they came to be made of metal alloys. (Fig. 8b)

There were different types of armor for the different types of men in battle. The Atlatl man wore a collar, a mosaic breast plate and mosaic helmet. His left or non-throwing arm is also protected by a quilt-sleeve from wrist to shoulder since this arm is very vulnerable to injury. In some cases, even a back

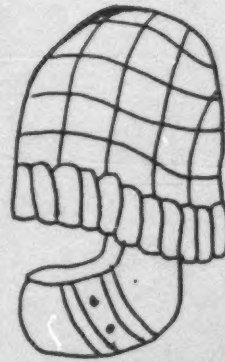


Fig. 8a



Fig. 8b



Fig. 9a



Fig. 9b

plate was also worn.

The armor was meant

to supply maximum

protection with

minimum weight.

(Fig. 9a) Since

the Macuahuitl men

and Spear men did

most of the fighting,

they were more heavily

protected with a

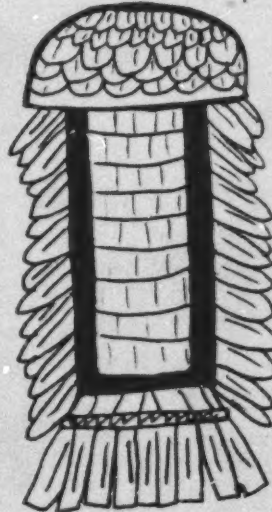
quilted cape, padded

kilt, shin-guards,

ankle and arm guards.

(Fig. 9b)

Although not a weapon, the canoe was used as a means of transporting both men and supplies to the battle area. Except for Guatemala's western region, there are few traces of the Mayan building fortifications for use as defensive positions.



How were these weapons and equipment used by the warrior, just how did the Pre-Columbian peoples organize their armies, what happened in time of war and more important - why war? Wars were usually fought during periods of severe hardships, such as famines, floods and national disasters. In other times, the priest-warriors would decide the time for wars. The Maya also believed that misfortunes would occur in the year which the dominant letter was Ix and which Bacab Saccini rules. It was during this time also that wars would come; it was almost a pre-determined event. Large scale warfare

seems to have been the result of the idea that prisoners were needed for sacrifices so their blood could strengthen the gods. Another view is that "Organized warfare rose with the rise of powerful groups of nobility inside the framework of the state who came to resent the central power of Sun King and Sun King's Priest."⁵

No matter how a war came about, the following will give a mental picture of just how this army appeared to its enemy. Landa states that,

They appeared with all the arms which they use in the wards, quivers of arrows, poles (pointed) ty fire, lances ending in sharp-pointed flints, two-handed swords of very strong wood (set with) obsidian, whistles and beating the shells of large turtles with deer horns, blasts of great snail shells free of the meat, only covering the delicate parts with cloth, the entire body daubed with earth of many colors so that they appear as most ferocious devils: the holes in their noses and ears with nose and ear pieces of cuzcas and other stones of varied colors...each representing an infernal and frightful figure.⁶

The wars were generally pretty short in duration because of the small amount of provisions one could carry on his back for lack of a beast of burden. Also there were truces at night since they were accustomed to fighting during the day. Meanwhile back at home the women also played a part to insure victory. As long as the men were out to war, the women did not wash their faces, so maybe it was a good thing in more than one way that the wars were short. The women also made tortillas

and offered them to the gods along with hanging out the old war souvenirs.

There were two captains in charge of the army. One was a hereditary position and the other was an elected one for which the term of office was three years. His duties were to conduct the festivals, carry the gods into battle and to remove the heart of the sacrificed victim. This elected captain was called Nacom, and with his office went various restrictions for that three year period. He was not allowed to have relations with any women, not even his wife, nor could he eat meat. He was held in great veneration and given fish and iguanas to eat. The latter was believed to stem one's sexual drive. He also had very little communication with the people. The two captains discussed the possibility of war and if it seemed necessary, there were men chosen from the village to fight. These men, called holcans, would come with arms ready to do battle. If more were needed, they held a sort of draft. The word holcan means valiant or strong, and these holcans would receive pay only during the time of the fighting. Their pay came directly out of the pockets of the captains, while the town folk donated the food.

The warrior would earn a special place, not only in this world but the next one also as a savior of their people through their ability to keep the gods powerful and friendly. On the other hand, you have the enemy

soldier who suffered a fate somewhat worse. Part of his fate is told by the Bonampak mural.

The Bonampak mural which can be dated to shortly after A.D. 800 on the basis of Long Count texts and stylistic consideration, obviously relates a single narrative story of a battle, its aftermath and the victory celebrations. Against a background of stylized jungle foilage, a skirmish takes place among magnificiently arrayed Maya warriors, while musicians blow long war trumpets of wooden bark. The scene shifts to a stepped platform in Bonampak itself; the miserable prisoners have been stripped and are having the nails torn from their fingers. An important captive sprawls on the steps, perhaps tortured to exhaustion, and a severed head lies nearby on a bed of leaves. A naked figure seated on the platform summit pleads for his life to the central figure, a great lord clad in jaguar-skin battle-jacket surrounded by his subordinates in gorgeous costume.⁷

The first captured was immediately sacrificed while others were taken back to the conquering city and caged. The less important captives ended up as slaves but the nobles and war leaders had their hearts torn out on the sacrificial stone. After the victory, the victorious soldiers took the jaws off the dead bodies and with the flesh cleaned off, they wore them on their arms. The warriors then returned home to await the call of the gods to once again return to the battle field.

When confronting forces met, battle began with what Victor W. Von Hagen calls "a war of nerves". There were military promenades to overawe the enemy.⁸ Warriors came with drums, conch-shell horn, whistling and sounding their drums, which was an affective necessity in overcoming

the enemy. The aerial bombardment was the first contact. When they charged each other, the (maquahuitl) important part of the battle began. The objective was to capture prisoners or to capture the highest officials in sight. Once the quota was met, the battle was over.

The organization of the armies was based upon the capulli system of land division. Several clans composed the capulli and had their own war captain-general. Twenty clans or about 400 men were needed to form a squadron. Squadrons formed divisions and divisions formed the army. The capulli system was used to assemble into fighting formation within a few-hours notice. Upon the supreme general's command, a chain of events would develop. Messengers would reach out in all directions until every capulli was notified.

The supreme general was the Aztec Ruler. The actual commander forces was the Tlacteca-tecuhtli for the supreme general did not always go to battle. His orders were passed down to four generals who headed the forces from the Empires four quarters. Each of the four generals commanded several corps. Each corps having its own commander or commandant.

Corps were subdivided into Divisions with a division chief commanding a force from 800 to 1000 men strong. The division was divided into squadrons consisting from

200 to 400 men commanded by a squadron chief. The squadron was made into squads with the squad leader being the chief of 20 men. They didn't have 4 men fire teams:

1. The wearing of a mimicry of an open eagle's beak and feather weaving of eagles feathers symbolized the military elite, the order of the Eagle. His capture was the ultimate target.
2. War Lords. War dress was elaborate. He would dress in Quetzal feathers frequently with fantastic head gear. His capture by the enemy was a prime target.
3. The order of the Jaguar were the most feared opponents in battle. They prepared themselves in jaguar skins as fierce looking as their ability to fight. Only after capturing a certain number of enemies could a man join these societies.
4. Soldiers and common warriors (yaoquizques) wore a decorative but distinct tunic of their own particular clan. They were the bulk of the fighting force.

PART TWO

The Instructions Can Be Given Out by
the Teacher or Read to the Students

The Game:

"Atl Atl" is a game of war with sixteen basic rules and infinite number of strategies. The basic method of war illustrated by this game is a Pre-Columbian form of guerrilla warfare. The objective of the game is not to conquer territory (as in chess), but to exhaust your opponents forces while redeeming one's own territory. Therefore, the board is set up with a space between the territories, across which each player raids. The purpose of raids or the raid is two-fold: to capture an opponent but this only allows one to accumulate wealth (points); and second to lure your opponent into a trap upon your own territory so you can "regenerate your earth" as well as deplete his forces.

The game holds the player's interest and presents opportunities for a completion effect through one or more of the following mechanisms: The tallying of points, the strategies involved in trapping an opponent, the capturing of opponent's pieces, the protecting of one's own pieces, the regenerating of one's territory, and the winning of the game. Points of concentration to achieve these mechanisms are focused upon the advancing of one's King and Queen simultaneously and the using of the Peones

as reinforcement, not as shields for the leaders. Since only cowards and women don't raid, each player must venture into the opponent's territory to show his manhood, even if it is not to his advantage to do so, for one of the purposes of this game is to show the waste and useless destruction caused by a war. The purpose of keeping the King and Queen together as presented by the rules of this game is to demonstrate the man-woman relationship in Pre-Columbian societies. Focusing upon this relationship demonstrates to the player that a man is only as strong as his woman and a woman is nothing without her man.

The nature of suspense is created by trying to defend against a raid while you are trying to set up an offense for a raid. Thus, each piece upon the board is valuable with the strength and attacking power of a player being diminished as he loses his pieces. But, a bold player may be willing to lose a few valuable pieces (except the King who must be redeemed) in order to regenerate his territory and eventually win the game. Therefore, one may do a lot of accumulating of wealth and still lose the battle.

The unique qualities and characteristics of this game stem mostly from the Pre-Columbian philosophical concepts upon which the game is based. Therefore, if the bravest men are the rulers, then they ought to be in the front line (instead of in the back line behind the

pawns as in chess) where they can lead their people into battle, but the further away a leader gets from his people, the more vulnerable he becomes to capture (as long as a leader has a Peon directly behind him no opposing piece can be captured without risking capture by the Peon). Also, the first move of the game is made by the King, for being most brave, he must make the first move. The features of pawn swaping and the redeeming of the King also stem from the methods of warfare. Thus, the game can be used as a key part of a curriculum unit that studies Pre-Columbian cultures, for every move in the game has a philosophical root in the thought systems of civilizations of Meso-America before the time of Christ.

Rules:

1. Queen cannot move until King moves.
2. The Queen must stay with the King. In any two successive moves, the Queen must follow the King to an adjacent square (but remain behind him).
If the Queen cannot follow the King, or the King cannot get back to the Queen on his next move, the King cannot make his original move.
3. If the King and Queen become separated, the player must surrender one Peon to get them in position upon adjacent squares.

4. All pieces should be captured upon your own territory (for your earth to be redeemed) to gain total points the piece is worth. If one captures a piece upon your opponent's territory, one splits the points with one's opponent, (for you may have captured his piece, but you have redeemed his territory).
5. Peones can only move forward one step at a time.
6. Dogs move two steps in one direction and two in another.
7. Pyramids move at right angles.
8. Nohabins move diagonally.
9. King and Queen move in any direction.
10. The King takes his own color, the rest of the players set like in Chess but the leaders are in the front line instead of the Peones.
11. The King must be exchanged for 3 Peones, either 3 of your own men or 3 that you have captured. If you surrendered 3 captured Peones, then your opponent can put them in play in their original position (anywhere in the back row). If you cannot put them all in the back row, then keep them in reserve until you can.
12. One cannot jump any piece on the board.
13. The King is placed back on original position or adjacent to Queen.

14. The King must be the first move of the game for each player.

15. The game is ended when either one's Peones are depleted or one cannot redeem one's King.

16. Worth of Pieces:

Peones	=	20 each
Pyramids	=	40 each
Dogs	=	60 each
Nohabins	=	80 each
King and Queen	=	100 each

Unit on: Pre-Columbian Culture
Calendar Unit
(English Version)

Calendar Unit

Preamble

The use of the various calendars in this lesson is to get the student to thinking in terms of numbering concepts not heretofore used in schools. The mathematic principles presented in this lesson are to give the student a passing acquaintance with some basic Pre-Columbian thought patterns about design, the universe, and life. The ideas about symmetry and design can be used with grades 3-12. The materials on the numbering system have not been tried with students below the seventh grade.

Unit Objectives

Primary Instructional Objectives: The student will demonstrate a knowledge of Pre-Columbian mathematical concepts by working problems in base 20 using Pre-Columbian symbols and by constructing a 52 year cyclical calendar.

Secondary Instructional Objectives: The student will be able to identify symmetric and asymmetric geometric design. The student will be able to write an essay on how Meso-American, Pre-Columbian peoples used their concepts about design and mathematics in their daily lives.

Affective Objectives: Each student's life style will be enriched by the development of elementary patterns, based

on the philosophical and mathematical concepts of Pre-Columbian man. These will serve as alternative patterns to the philosophical concepts of Western Civilization.

Calendar Unit: Lesson One

Objective: The student will be able to identify a 260 day cycle calendar and basic numbering symbols that operate in a base 20 system.

Purpose: One of the basic elements of the Pre-Columbian calendrical systems was the 260 day cycle. In order to understand the whole system, one must first comprehend each of the sub-systems.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
	<u>Introduction</u>	
Recalling	What is a calendar? Class discussion or have each student write a short essay on what he thinks a calendar is.	<u>Calendar</u> is a system of recording time.
Recalling	Why do people need calendars? The teacher might bring into the classroom several calendars (Chinese, Hebrew, Gregorian, Aztec, etc.) Again, class discussion and/or short answer essays. Small group discussions of the two previous questions would be desirable with each group recording its findings on tape. The next class period could be used to review the tape and for general discussion.	Man seems to have a need to record time and to keep records so he can keep track of the past and plan for the future.

Inquiry
ProcessQuestions and ActivitiesData, Concepts and
GeneralizationsDevelopment

Observing,
Interpreting

What is the difference between a man who thinks of time as flat and a man who thinks of time in cycles? (Sample #1). This difficult question will take much class discussion and work with Sample #1. Also of use to this discussion would be a reading out of Irene Nicholson's Mexican and Central American Mythology. Make class summary of conclusions.

The Pre-Columbian American thought in cycles. Zero and infinity were the same.

Recalling,
Interpreting

Upon what symbols was the Meso-American numerical system based (Sample #2)? First show how our system uses a base ten using for the first column example like:

1x1=1
3x1=3
9x1=9

for the second column:

1x10=10
2x10=20
8x10=80

for the third column:

1x10x10=100
4x10x10=400
6x10x10=600

Have students work out problems for thousands and ten thousands. Then apply the material to addition and subtraction and

The Meso-American system was based on three numerical symbols (Sample #2).

The Arabic system operates off a base 10 (Sample #2).

The Meso-American system operates off a base 20 (Sample #2).

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Applying	have the students work out problems. After the students have developed the skill to work with the base 10 concept, transfer over to the base 20 system given in Sample #2. Have the students work out the constructing of base 20 number symbols with Pre-Columbian symbols using Figure #1 in Sample #2 as a model.	
Classifying	Give the students exercises where they have to identify numbers into groups of base 20 or base 10.	
Observing	How did Pre-Columbian man use the base 20 system in a 260 day cycle calendar? See Sample #3. Have the student construct out of cardboard disks a 260 day calendar. Note that the disks are asymmetrical.	The mathematical calendar of the Maya had 13 numbers and 20 named months.

Evaluation: This was a difficult lesson, even though the motivation was high. It took two weeks and much discussion and drill. Transparencies of each of the figures in the "samples" of this lesson would be helpful in class discussions. The tape recording of class "summaries" made a useful information bank for those who missed class or wanted more drill.

Calendar Unit: Lesson Two

Objective: The student will be able to construct a "Vague Year" calendar using Pre-Columbian symbols.

Purpose: This "Vague year" calendar is the second half of the 52 year calendar. This lesson will also give the student an opportunity to improve and review the skills introduced in Lesson One of this unit.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Recalling	What is a 365 day year based on? One might bring in some astronomy concepts here to show how we get the idea of a day and of a year. The use of a tennis ball representing the sun makes a good prop to demonstrate the concepts of revolution (going around the sun) and rotating (revolving on our axis).	A 365 day year is a <u>solar</u> year. It is the time it takes for the earth to go once around the sun.
Recalling	How do we divide up our year? How did the Maya divide up their solar year? (Sample #4).	The Maya divided their year into 18 named months of 20 days each.
Observing	Have the student construct a "Vague year" calendar out of cardboard disks.	

Evaluation: This lesson served as reinforcement to the last lesson and went much smoother. The ideas of design could be brought into this lesson when you have the students build the calendar.

Calendar Unit: Lesson Three

Objective: The student will be able to construct a 52 year cyclical calendar.

Purpose: To get the student to operate in a cyclical rather than an annual frame of reference. To get the student to relate mathematics to geometric design.

Teaching StrategyInquiry ProcessQuestions and ActivitiesData, Concepts and Generalizations

How is the 260 day cycle different from the 365 day cycle? Review tapes and lists made in previous lessons.

The student can now begin construct a 52 year cycle. First one must give every day in the 260 day cycle a name by using the disks already made in class. The same process must be done for the "Vague year" cycle. Now the class can make two large disks, one for the 260 and one for the 365. (Sample #5). Place the 260 disk on top of the 365 disk as in sample #5. Work out whatever combination of days desired until the students can work the calendar for themselves.

Each day in the 52 year cycle comes once every 52 years.

ObservingInterpreting

Include here the mythology of the calendar so that the students can form their own legends about each day.

See Nicholson, Mexican and Central Mythology, pp. 43-53.

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Extrapolating	Have the students work out calculations for the seasons and directions for the 365 day cycle by breaking the 260 day cycle into four sub-parts of 52 days.	The Aztecs used the calendar to know when to plant corn and predict the weather.
Correlating	Have the students decorate their calendars with geometric motifs from the Design Unit.	Geometric design can be used to make mathematical calculations.

Evaluation: This was the easiest lesson in this unit. Motivation was high. The use of tape recorders as a review device worked well. Transparencies of each model should be made to facilitate class discussion and comprehension. The actual use and designing of the calendars proved great fun and made the work that went into them previously worthwhile.

Calendar Unit: Lesson Four

Objective: The student will evaluate the unit and his work by identifying those concepts and experiences most useful and meaningful to him.

Purpose: To make the student relate the material to his own life style. To modify the lesson if necessary for future classes.

Teaching Strategy

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
	Assign to small groups the four following questions:	

<u>Inquiry Process</u>	<u>Questions and Activities</u>	<u>Data, Concepts and Generalizations</u>
Identifying	What about the material about Pre-Columbian mathematics did you like the best or the least?	
Interpreting	What things about these lessons would you change?	
Identifying Classifying	What ideas from these lessons were the most important to you?	What is important for you may or may not be important to the person next to you.

Have each group write group answers and have a panel discussion on each of these questions.

Evaluation: The number systems were the things liked least. The students liked working with and designing the calendars. The ideas presented on cultural relativity in Lesson One seemed very important to many of the students. Most of the students liked the idea that the materials in this lesson answered some of their questions about a way of thinking that was foreign to their thought systems.

Sample #1

Meso-American Man and the Problem of Time

No one way of thinking is superior to any other form of thinking. Each group of men build or learn a culture, (or way of life) that solves for them the problems they find in their environment. Each group of people who have lived on the face of the earth have developed some form of thought that deals with the "Great Unknown." Time is one of those "Unknown" things. Therefore, each group of men have developed some way to measure it, record it, and organize it. The following material is a basic discussion on how the Meso-American civilizations sought to measure, record, and organize time.

Meso-American man thought in cycles (Figure #1). He

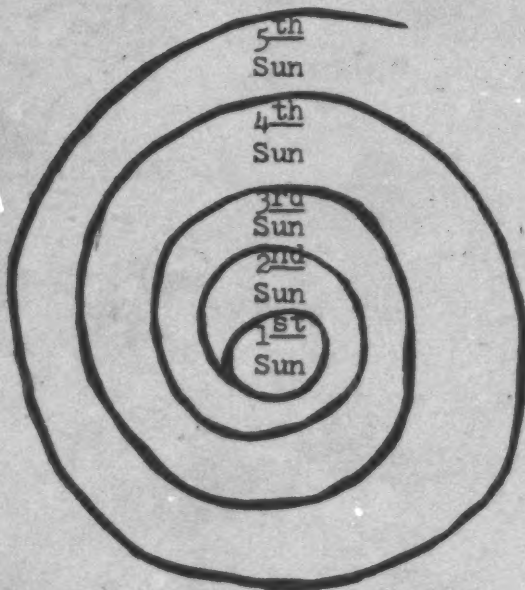


Fig. #1

felt that he was now living in the cycle of the Fifth Sun and that the cycle would last as long as man continued to redeem it with his blood. To these people, the idea of nothing or zero, and the idea of all, or infinity, were the same thing. The beginning and the end were in the same place in time.

The words first and last were the same word and not two different words like in English or Spanish.

European men speak of time-lines and think flat like in Figure #2. They don't have any year zero, or zero on

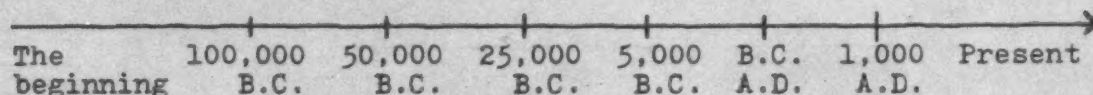


Figure #2

the clock. European man has organized time on a straight line while Meso-American man organized time in circles.

Meso-American man believed that each day was a living thing, like a god. Time was a living thing and not just passing seconds on a clock. To them the idea of "killing time" would be a form of murder. Each division of time, be it day, second, month or year, was a living thing and was represented to man by god-like messengers called numbers. The Pre-Columbian calendar was not just a method of organizing time, but a procession of gods moving across the Universe.

Sample #2

Pre-Columbian Numerical System

The Arabic numerical system, which we now use has ten numerical symbols, (0, 1, 2, 3, 4, 5, 6, 7, 8, 9). The Precolumbian system had only three numerical symbols: the dot (.) for one, the bar (-) for five, and a symbol called a naught (0) which could stand for either zero or twenty.

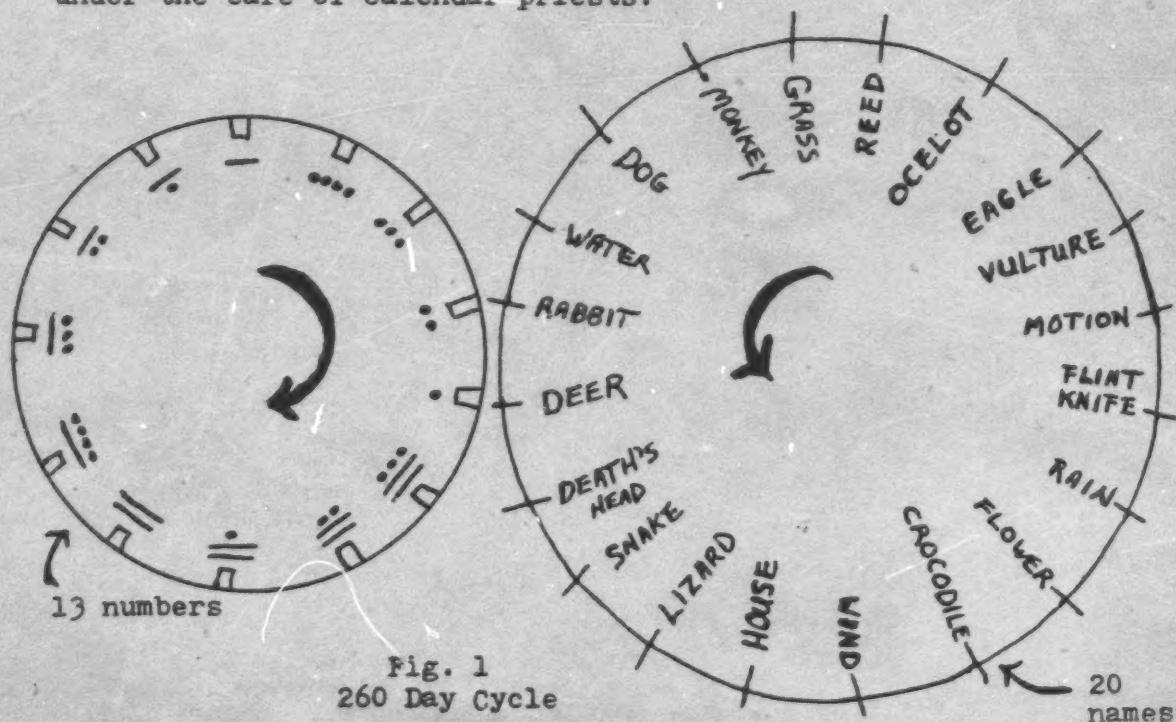
The system we now use has the number 10 as its base number. The value of each number reads from left to right with increasing value in the number from right to left in a horizontal fashion. In the first column each number is in units of one; the second column from the right, each number is in units of 10×10 or one hundred; and so on. (The fourth column would be thousands; the fifth column would be ten-thousands.) The Pre-Columbian numerical system uses the number 20 as its base number. The value of each number reads from bottom to top in vertical columns. The first and lowest row has the value of one; the next highest row has the value of 20; and the next higher row has the value of 20×20 or 400. If one wished to go higher, one would use for the next row 20×400 as the base number or 8,000. For example, if one saw in the fourth row from the bottom of the column two bars, (= each equalling $5 \times 8,000$) the number would be $40,000 + 40,000$ or 80,000. (See Figure #1.)

Figure #1

				
				
				
				
20	55	249	819	72,063
				
0	1	4	6	19

Sample #3

Among the Maya, the 260 day count (sometimes called by the ersatz term 'tzolkin') began with 1 Rabbit, followed by 2 Water, 3 Dog, 4 Monkey, until 13 Flower had been reached; the day following was, of course, 1 Crocodile, with the coefficient 1 again, leading to 2 Wind, and so on. The last day of the cycle would be 13 Deer, and it would repeat once again beginning with 1 Rabbit. How such a period of time ever came into being remains a mystery, but the use to which it was put is clear. Every single day had its own omens and associations and the march of the twenty days acted as a kind of perpetual fortune-telling machine guiding the destinies of the Maya and all the peoples of Mexico. It still survives in unchanged form among some isolated folk in southern Mexico and the Maya highlands, under the care of calendar priests.



Sample #4

Meshing with the 260 day count is a "Vague Year" of 365 days. It is called a "Vague Year" because the actual length of the solar year is about a quarter-day more. This leads us to stick in one day every four years to keep our calendar in march with the sun. This was ignored by the Maya. Within the Mayan "Vague Year" there were 18 named "months" of 20 days each, with a much-dreaded interval of five unlucky days added at the end. The Maya New Year started with 1 Pop, the next day being 2 Pop, etc. The



Fig. 1

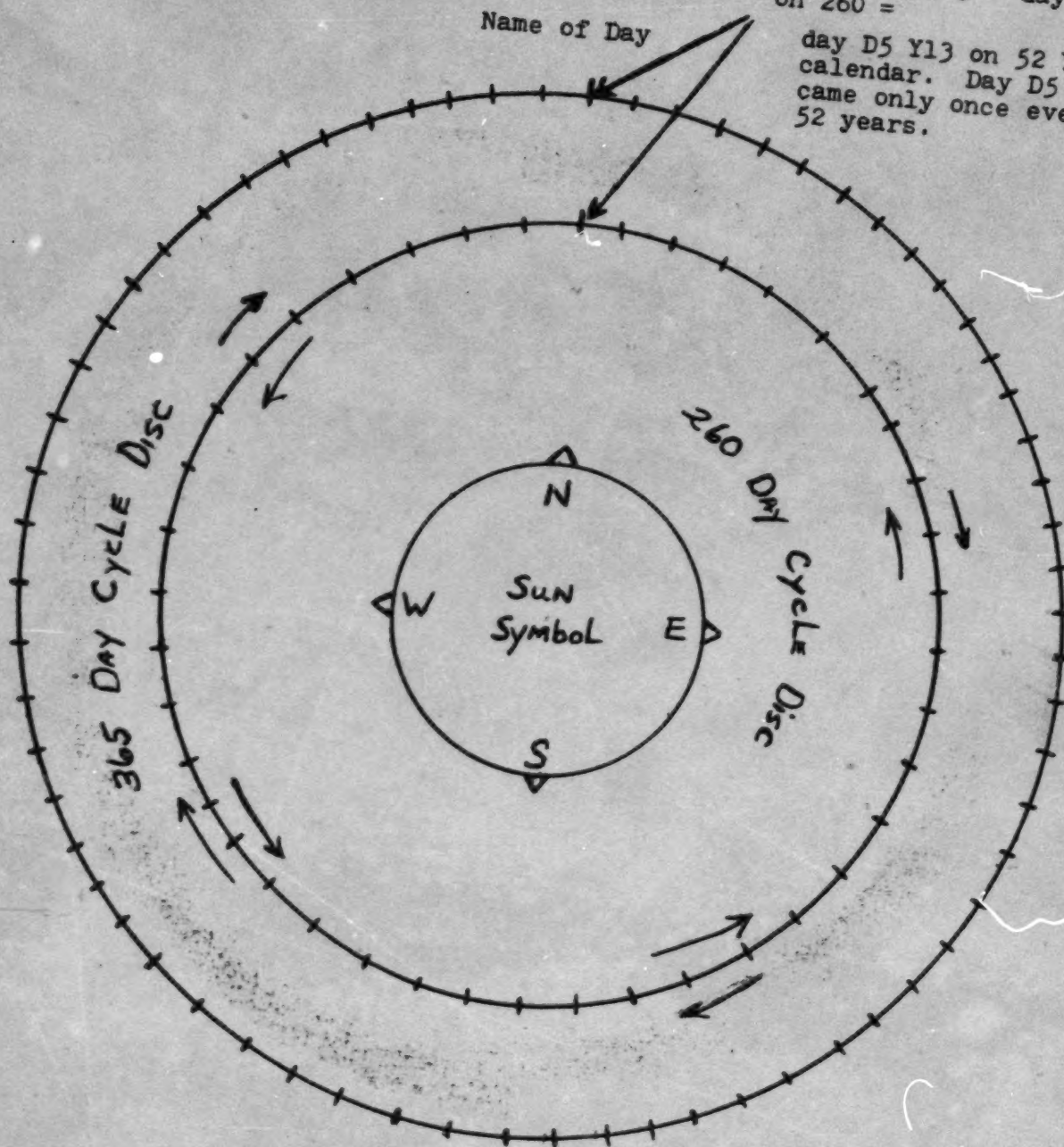
final day of the month, however, carried not the number 20, but a sign indicating the "seating" of the month to follow. This was in line with the Maya philosophy that the influence of any particular span of time is felt before it actually begins and persists somewhat beyond when it ends. The two disks in the Calendar are set up to reflect this philosophy, with the names and numbers as the 260 cycle disks.

Sample #5

Day D5 or 365 + day Y13
on 260 =

day D5 Y13 on 52 Yr.
calendar. Day D5 Y13
came only once every
52 years.

Name of Day



Unit on: Pre-Columbian Culture
Unidad del Calendario
(Versión en Español)

Unidad del Calendario

El uso de varios calendarios en esta lección es con el intento de que el alumno empiece a pensar en conceptos de numeros que hasta ahora no han sido usados en las escuelas. Los principios matemáticos presentados en esta lección son para dar al alumno conocimiento sobre algunos patrones precolombinos basicos en la manera de pensamiento sobre el dibujo, el universo, y la vida. Las ideas sobre simetria y diseño pueden ser usados con los grados 3-12. Los materiales sobre el sistema de numeracion no han sido usados con alumnos alumnos bajo el grado 7.

Objetivos de la Unidad

Objetivos Primarios de Instrucción: El alumno demostrará conocimiento de conceptos matematicos precolombinos trabajando con problemas en base 20 usando simbolos precolombinos y construyendo un calendario ciclico de 52 años.

Objetivos Secundarios de Instrucción: El alumno podrá identificar simetria y asimetria en el dibujo geométrico. El alumno podrá escribir un ensayo explicando como la gente precolombina de Meso-America usaba sus conceptos sobre dibujo y matematicas en su vida diaria.

Objetivos Afectivos: El estilo de vida del alumno será enriquecido desarroyando patrones elementales basados

en conceptos filosóficos y matematicos del hombre precolombino. Estos serviran como patrones alternativos con los conceptos filosóficos de la civilización del Oeste.

Unidad de Calendario: Lección Una

Objetivo: Los alumnos podran identificar un calendario ciclico de 260 dias y simbolos basicos de numeracion que operan en el sistema de base 20.

Intención: Unos de los elementos basicos del sistema calendrico precolombino era el ciclo de 260 dias. Para poder comprender el sistema completo, es necesario primero comprender los subsistemas.

Estrategia de Enseñanza

Proceso de Indagación

Preguntas y Actividades

Datos, Conceptos, Generalizaciones

Introducción

Recordando

¿Que es un calendario?
Tengase una discusión en clase sobre lo que los alumnos creen que es un calendario, o pida a los alumnos que escriban un ensayo corto sobre el mismo topico.

Recordando

¿Para que necesita la gente calendarios?
La maestra puede traer a clase diferentes ejemplos de calendarios. (Chinos, Hebreos, Gregorianos, Aztecas, etc.) Una vez mas , tengase una discusion en clase or requierase un corto ensayo sobre los calendarios.

El hombre parece sentir la necesidad de mantener registros para saber lo ocurrido en el pasado y para planear el futuro.

Proceso de IndagaciónPreguntas y ActividadesDatos, Conceptos, Generalizaciones

Discusión en grupos chicos sobre las dos preguntas surgidas aquí, se recomienda que la discusión sea grabada en cinta.

Desarrollo

El hombre Americano precolombino pensaba en forma de ciclos. El cero y lo infinito eran igual.

Observando Interpretando

¿Cual es la diferencia entre un hombre que piensa que el tiempo es plano o tendido y uno que piensa que el tiempo ocurre en ciclos? (Ejemplo #1) Esta pregunta es muy difícil de contestar y se toma extensiva discusión y trabajo con el Ejemplo #1. También de beneficio con esta discusión sería el uso del libro de Irene Nicholson. Mexican and Central American Mythology. Agase un resumen sobre las conclusiones de esta discusión.

Recordando e Interpretando

¿Sobre cual simbolo se basaba el sistema de numeros de Meso-America? (Ejemplo #2.)

El systema de Meso-America se basaba en tres simbolos numericos. (Ejemplo #2.)

Proceso de
Indagación

Preguntas y Actividades

Datos, Conceptos,
Generalizaciones

Primeramente enseñe como muestra nuestro sistema de base 10 usando en la primera columna un ejemplo como el siguiente:

$$\begin{aligned} 1 \times 1 &= 1 \\ 3 \times 1 &= 3 \\ 9 \times 1 &= 9 \end{aligned}$$

Para la segunda columna:

$$\begin{aligned} 1 \times 10 &= 10 \\ 2 \times 10 &= 20 \\ 8 \times 10 &= 80 \end{aligned}$$

Para la tercera columna:

$$\begin{aligned} 1 \times 10 \times 10 &= 100 \\ 4 \times 10 \times 10 &= 400 \\ 6 \times 10 \times 10 &= 600 \end{aligned}$$

Haga que los alumnos resuelvan numeraciones (problemas) usando miles y diez miles. Luego aplique el trabajo o la tarea para sumar y restar y aquí tambien los alumnos resuelven problemas. Despues de que el alumno ha desarrollado la destreza para trabajar con el concepto numerico en base 10, cambie al concepto con base 20 que se encuentra en el Ejemplo #2.

Aplicando

Haga que los alumnos practiquen construyendo simbolos numericos en base 20 usando simbolos precolombinos usando Figura #1 en Ejemplo #2 como modelo.

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Clasificando	Desele a los alumnos ejercicios donde tengan que clasificar numeros en grupos de base 20 y base 10.	
Observando	¿Como usaba el hombre precolombino el sistema numerico de base 20 en un calendario con un ciclo de 260 dias? Vease Ejemplo #3. Haga que los alumnos construyan de cartón, discos de un calendario de 260 dias. Notese que los discos son asimetricos.	El calendario matemático del Maya contenia 13 numeros y 20 meses nombrados.

Evaluación: Esta fue una lección difícil, aunque el interes permaneció alto. Se tomaron dos semanas y mucha discusión y practica. Láminas de cada una de las figuras en los ejemplos seria de gran ayuda en las discusiones. Las cintas hechas durante los resúmenes de la clase fueron de gran beneficio para aquellos que estuvieron ausentes o para los que querian practicar mas.

Unidad del Calendario: Lección Dos

Objetivo: El alumno podra construir un calendario que tenga un "Año Indeterminado" usando simbolos precolombinos.

Intención: Este calendario conteniendo un "Año Indeterminado" es la segunda mitad de un calendario de 52 años. Esta lección le dará oportunidad al alumno de mejorar y revisar el trabajo que fue presentado en la primera lección de esta unidad.

Estrategia de Enseñanza

Proceso de Indagación

Preguntas y Actividades

Datos, Conceptos, Generalizaciones

Recordando

¿En que esta basado un año compuesto de 365 días? Aquí se pueden presentar conceptos en astronomía para demostrar de donde viene la idea de "un día" y la de "un año". El uso de una pelota para jugar tenis, que representa a la tierra, y una pelota de basketbal, que representa al sol, sería bueno para demostrar los conceptos de revolución (girando alrededor del sol) y rotación (girar en el axis).

El año compuesto de 365 días es un año solar. Es el tiempo que se toma la tierra para dar una vuelta alrededor del sol.

Recordando

¿Como dividimos nosotros nuestro año?

¿Como dividia el Maya su año solar? Ejemplo #4.

El Maya dividia su año en 18 meses nombrados, de 20 dias cada mes.

Observando

Haga que los alumnos construyan un calendario con un "Año Indeterminado" de discos de cartón.

Evaluación: Esta lección sirvió como re-enfuerzo a la lección anterior y caminó mas bien. La idea de dibujo puede ser introducida en esta lección cuando los alumnos construyan sus calendarios.

Unidad del Calendario: Lección Tres

Objetivo: El alumno podrá construir un calendario ciclico de 52 años.

Intención: Para inculcar en los alumnos la idea de pensar entre una forma ciclica en vez de anual. Para ayudar a los alumnos a que refieran conceptos matematicos con conceptos de dibujo geometrico.

Estrategia de Enseñanza

Proceso de Indagacion

Preguntas y Actividades

Datos, Conceptos, Generalizaciones

Recordando

¿Cual es la diferencia entre el ciclo de 260 dias a el de 365 dias? Revise las cintas y listas hechas en lecciones previas.

Ahora el alumno puede empezar a construir un ciclo de 52 años. Primeramente es necesario dar un nombre a cada dia en el ciclo de 260 dias usando los discos ya hechos en clase. El mismo proceso se usa para el ciclo del "Año Indefinido". Ahora la clase puede hacer dos discos grandes, uno para los 260 dias y el otro para el de 365. (Ejemplo #5).

En el ciclo de 52 años, cada dia viene una vez cada 52 años.

Pongase el disco de 260 dias encima del disco de 365 dias como en el Ejemplo #5. Arreglese la combinacion de dias deseados hasta que los alumnos puedan usar el calendario por si mismos.

<u>Proceso de Indagación</u>	<u>Preguntas y Actividades</u>	<u>Datos, Conceptos, Generalizaciones</u>
Interpretando	Incluyase aquí la mitología del calendario para que así cada alumno pueda formar su leyenda sobre cada día.	Vease Nicholson, <u>Mexican and Central American Mythology</u> , pp. 43-53.
Aplicando	Haga que los alumnos trabajen calculando las estaciones y direcciones para el ciclo de 365 días partiendo el ciclo de 260 días en cuatro subpartes de 52 días.	Los Aztecas usaban el calendario para saber cuando plantar maíz y pronosticar el clima.
Relación recíproca	Los alumnos pueden decorar sus calendarios con motivos geometricos que aprendieron en la unidad de dibujo.	Dibujos geometricos pueden ser usados para hacer calculaciones matematicas.

Evaluación: Esta fué la lección mas difícil de la unidad. Entusiasmo fue muy alto. El uso de la cinta como manera de revisar material sirvió bien. Láminas de cada modelo se necesitan para facilitar discusión y comprensión. El mero uso y el diseño del calendario fué muy divertido por lo cual el esfuerzo echo en lecciones previas fué recompensado.

Unidad del Calendario: Lección Cuatro

Objetivo: El alumno hará una evaluación de la unidad y su trabajo identificando aquellos conceptos y experiencias mas útiles y de mas sentido para él.

Intención: Para hacer que el alumno refiera el material a su propia manera de vivir. Para modificar la lección si es necesario para el uso en clases futuras.

Estrategia de EnseñanzaProceso de IndagaciónPreguntas y ActividadesDatos, Conceptos, Generalizaciones

Identificando

Citense a cuatro grupos chicos las siguientes cuatro preguntas:

¿Que cosa en particular sobre la materia en la matematica precolombina les gusto mas, menos?

Interpre-
tando

¿Que cosa en esta lección cambiarían ustedes?

¿Cuales ideas en esta lección fueron mas importantes para ustedes?

Lo que es importante para usted no es necesariamente importante para otra persona.

Pídale a cada grupo que escriba respuestas del grupo y conduzca una discusión oratoria sobre estas preguntas.

Evaluación: Los sistemas de numeros les gustaron menos a los alumnos. Les gusto trabajar con los diseños de los calendarios. Las ideas presentadas sobre el topico de relatividad de cultura parecieron ser muy importantes para muchos de los alumnos. A los mas de los alumnos les gusto la idea de que los materiales en esta lección les contestaron algunas de sus preguntas sobre una manera de pensar diferente a la que ellos estan impuestos.

Ejemplo #1

El Hombre Meso-Americano y Problema de Tiempo

Una sola manera de pensar no es superior a otra. Cada grupo de hombres edifican o aprenden una cultura (o modo de vivir) que para ellos resuelve los problemas que encuentran en su ambiente. Cada grupo de gente que ha vivido en la tierra ha desarrollado alguna forma de pensar que trata con lo "desconocido". El tiempo es uno de estos "desconocidos". De modo que cada grupo de gente ha desarrollado alguna manera de medirlo, registrarlo, y organizarlo. La materia que sigue es una discusión básica en como las civilizaciones Meso-Americanas procuraron medir, registrar y organizar el tiempo.

Fig. #1

(Vea página 208, versión en Inglés.)

El hombre Meso-Americano pensaba en ciclos (Fig. #1). El sentia que en ese tiempo estaba viviendo en el ciclo de el Quinto Sol y que la duración de este ciclo permaneceria mientras que el hombre continuara rescatandolo con su sangre. Para esta gente, la idea de nada o cero, y la idea de todo o lo infinito,

era la misma cosa. El comienzo y el fin estaban en el mismo punto en tiempo. Las primeras y últimas palabras eran igual y no dos diferentes palabras como en el Inglés y el Español.

El hombre Europeo habla de líneas de tiempo y piensa en forma plana o tendida como en la Figura #2. No tienen

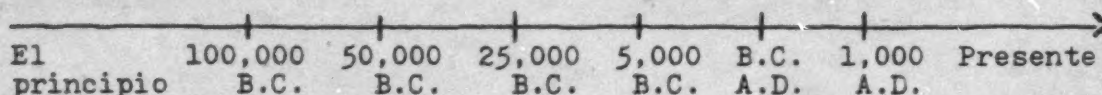


Fig. #2

el año cero, o un cero en su reloj. El hombre Europeo ha organizado su tiempo en una línea plana o tendida mientras el hombre Meso-Americano organizó su tiempo en círculos.

El hombre Meso-Americano creía que cada día era una entidad viva, como un dios. El tiempo es algo viviente y no nadamas segundos pasando en su reloj. Para ellos la idea de "perder tiempo" seria una forma de homicidio. Cada division del tiempo, fuera un dia, segundo, mes o año, era una cosa viviente y era representada al hombre por mensajeros semejantes a dios llamados números. El calendario precolombino no era nadamas que un método para organizar tiempo sino que representaba una procesión de dioses moviendose a travez del universo.

Ejemplo #2

Sistema Numérico Precolombino

El sistema numérico Arabico que usamos ahora tiene diez simbolos numéricos (0, 1, 2, 3, 4, 5, 6, 7, 8, 9). El sistema numérico precolombino tiene nadamas tres simbolos numéricos: el punto (.) para el uno, la barra (-) para el cinco, y un simbolo llamado cero o nada (0), que representa el cero o veinte.

El sistema que ahora usamos tiene el diez como su número de base. El valor de cada número se lee de izquierda a derecha con aumento en valor al número de derecha a izquierda, horizontalmente. En la primera columna cada número es de unidades de uno. La segunda columna de la derecha cada número es en unidades de diez. La tercera columna de la derecha cada número es de unidades de 10 x 10, o cien, etc. (La cuarta columna seria miles, la quinta seria diez miles.) El sistema numérico precolombino usa el número 20 como su número de base. El valor de cada número se lee empezando de abajo hacia arriba en columnas verticales. La primera columna de abajo tiene el valor de uno; la siguiente columna, la segunda de abajo, tiene un valor de 20; el siguiente a este tiene el valor de 20 x 20 o 400. Si uno quiciera contar mas alto, usaría para la siguiente columna 20 x 400 como el número de base o 8,000. Por

ejemplo, si uno viera en la cuarta columna empezando de abajo de la columna dos barras, (cada una igualando $5 \times 8,000$) la suma sería $40,000 + 40,000$ o $80,000$.
(Vease Fig. #1.)

Fig. #1

(Vea página 211, versión en Inglés.)

Ejemplo #3

Entre los Mayas el calendario de 260 días (a veces llamado por el termino 'ersatz' de "tzolkin") empezaba con un conejo, seguido por 2, agua, 3, perro, 4, mono, hasta que llegaban a 13, flor; el día siguiente era, por supuesto, 1 cocodrilo, con el co-eficiente 1 otra vez, seguía 2, aire, etc.

Como este periodo de tiempo fue creado es todavía un misterio pero su uso está claro. Cada día tenía su propio agüero y asociación y la marcha de los 20 días actuaban como una perpetua máquina de decir la suerte guiando los destinos de los Mayas y las gentes de México. Aun sobrevive en su forma sin cambiar en algun lugar aislado en el sur de México bajo el cuidado de algún sacerdote.

Fig. #1

(Vea página 212, versión en Inglés.)

Ejemplo #4

Engranado con el Año de 260 está un "Año Indeterminado" de 365 días. Se llama "Año Indeterminado" porque realmente la duración del año solar es aproximadamente un cuarto-día más. Esto nos hace añadir un día al calendario cada cuatro años para poder mantenerlo en marcha con el sol. El Maya ignoró esto. El "Año Indeterminado" del Maya tiene 18 meses "nombrados" de veinte días cada uno, un interval de cinco temerosos o espantosos días que traen mala suerte agregados al fin. El año nuevo Maya con un (1) Pop, el siguiente día siendo dos (2) Pop, etc. El último

Fig. 1

(Vea página 213, versión en Inglés.)

dia de el mes no llevaba el numero 20 sino que tenia una seña indicando el tiempo cuando el nuevo dios era "sentado." Esto esta de acuerdo con la filosofia Maya, la cual era que la influencia de cualquier palmo particular de tiempo se siente, antes de que empieze, y persiste un poco mas o menos despues de su fin. La manera de que los dos discos en el calendario estan contruidos reflejan esta filosofia, con los nombres y los números siendo los discos de 260 ciclos.

Ejemplo #5

(Vea página 215, versión en Inglés.)

Footnotes

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¹⁹Edward H. Carr, What is History, Alfred A. Knopf. (New York, 1963) pp. 27-29.

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²⁹Sarane S. Boocock and James S. Coleman. "Games with Simulated Environments in Learning", Sociology of Education, Vol. 39, no. 3. pp. 215-236. See also: William A. Nesbitt. Simulation Games for Social Studies Classroom. (Washington: Foreign Policy Association, 1971).

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⁴⁸Op. cit., Sterns, p. 148.

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⁵⁰Roger Fransecky and John Trojanski, "A Primer on Games", Media and Methods, Vol. 8, no. 3. p. 36.

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ANNOTATED BIBLIOGRAPHY OF
PRE-COLUMBIAN MATERIALS

ANNOTATED BIBLIOGRAPHY OF PRE-COLUMBIAN MATERIALS

Ashton, Dore. Abstract Art Before Columbus. New York: Andre Emmerich Gallery, 1957.

A book which gives a good description of the various periods of ancient art in Mexico, but has outstanding plates of abstract art of the ancient cultures. (Used for background material.)

Basler, Adolphe. L'art Precolumbien. Paris: Librairie Grund, 1947.

Since this book is written in French, it is of little use as far as the written section goes, but the plates of the book offer outstanding examples of Pre-Columbian art, some of which I used for design plates.

Bernal, Ignacio. Mexico Before Cortez: Art, History, and Legend. New York: Dolphin Books, Doubleday and Company, Inc., 1963.

Ignacio Bernal states in the very first sentence of the preface that "the sum of this slim volume is simply to outline the history that made Tenochtitlan what it was, and at the same time to mention some of the main events and the spirit that led to their occurrence." Mr. Bernal not only does in this work what he set out to, but also has written a work that is scholarly enlightening and very readable.

The author draws heavily upon his own extensive research, as well as the research of the leading Mexican historians. He includes extensive quotations from the Indian codices which are contemporary with the era he is dealing with. He also uses plates and clear readable maps as an augmentation to the text without any direct reference to them.

The chapter on the Toltecs is the most factually summarized statement of its kind, and is a greatly needed piece of research on this great yet mysterious people. When Mr. Bernal is writing about the Toltec, as well as the other peoples studied in this work, the only bias that is readily apparent is his love for his heritage and culture. Also of use is an extensive self-pronouncing glossary. The work's greatest value is its brevity, which puts it in a class by itself when one is looking for an introductory text on the Mexican portion of Pre-Columbian history. The work could be used in a high school class room, but would probably be of most value as the text dealing with the Pre-Columbian Mexican at the Junior College level.

Burland, C. A. The Gods of Mexico. New York: Capricorn Books, 1968.

"The religious beliefs of the people determined their politics, their day by day activities and their art in all its manifestations." (page 4)

The above quotation states the main idea around which C.A. Burland writes this book. Its approach to Pre-Columbian history is through the gods and the religious philosophy associated with them. The premise is good. A people's religion reflects their needs and approach to life. In it is the mind process, more important to understanding a people than how many acres of corn they grew in a particular year.

Basically the book seemed fairly relevant outside of a few slips in the editorializing end. Those latter points will be mentioned first in an effort to end this review on a more positive note.

What was most questionable to me was the author's apparent bias towards the Spanish. On page three he talks about the influence of the Franciscan monks on the Indians. "They founded schools to teach the young and churches to bring new life to the Indians." The point not brought out is what the Indians were taught in these schools and whether it benefited or harmed their concepts of and ability to function in their own culture. Another question left unanswered is "how was the new religion supposedly helpful to the indigenous peoples?"

On page fifteen, the author gives his basic conception of Spanish influence. "Final destruction came when the Spanish invaders brought new hope to the subject people who were always waiting their chance to destroy their oppressive masters. The empire had not spread a higher civilization; it had done little but extract tribute from conquered cities." There are references throughout the book to this aspect of their history. The Spanish are always mentioned as a positive force. No mention of their racism, brutality and destruction is made. Indirectly one gets the impression that the Spanish were civilized and moralistic and from this, that they were answering the call of an oppressed people rather than the Imperialist desires of the Spanish Empire.

More positively, the author used fairly accurate semantics. He refers to the people in general as Mexican, whether they be Maya or Aztec. He does not make a distinction between Indian and Mexican or White and Indian.

He talks about "rhythms of nature" (page 73) in relation to the lives of the people. His account of the history seems well documented. He tells the

reader where exactly he drew his information from, and lists those sources. In the back of the book, Burland makes available a list of authentic documents from the actual indigenous people of Pre-Columbian times and states, that to the best of his knowledge, they are all that have been found to date.

There is an attempt to relate this period to modern times. It's rather feeble overall, but there are parallels drawn. (Example, page 9, top.) In an effort to make the history of Mexico relevant to people living today, Burland issues a warning to his readers, "If they had taught us nothing else, the Aztecs should warn all of us against the terrible dangers which come from emotional obsessions which obliterate the calm light of reason." (page 189) The quality of this comment must be judged by the reader. My own feelings are that it's misguided because it depends on the author's emphasis on the tyranny of the last empire.

Caso, Alfonso. Aztec: People of the Sun. Norman Oklahoma: University of Oklahoma Press, 1968.

This work is one of the clearest, most easily understood works on the Pre-Columbian pantheon. This work is merely an introductory work on the topic and should not be used as the ultimate source. The illustrations by Miguel Covarrubias are an enlightening feature of this work, not just because of their own innate beauty, but also as agents of clarification for the text. Caso deals with the philosophical assumptions behind each of the various entities of the pantheon as well as an exposition of the function of each god and the feasts associated with them. This work could be read by someone reading at least at the tenth grade level.

Coe, Michael D. The Maya. New York: Frederick A. Praeger, Publisher, 1966.

Michael Coe's work, The Maya, appears upon the surface to be essentially an anthropological study of this magnificent Meso-American civilization. Fortunately, this observation is not true, for this book's depth is its insights into the life-style, culture, accomplishments, and the social stratification of the Mayan peoples. The book is most informative without being dreary due to the innovative manner in which editors of the "Ancient Peoples and Places" series have seen fit to publish the work. In the external margin of each page are references that apply to the text of 83 photographs, 44 line drawings, 7 maps, and one table.

The scope of this work is handled in a chronological fashion starting at approximately 3000 B.C. and ending in 1697 when the last Mayan stronghold had been smashed by the Spaniards. Mr. Coe spends most of the work dealing with the "Classic Periods" between 300 and 900 A.D. He does a good job in correlating the events that make up Mayan history with those "Mexican" events that either directly influence the Maya or lend understanding to the environment in which the Maya functioned. Coe makes a distinction between what he calls the "Mexican Civilization" and "Maya Civilization" and builds a fairly well defined case for making this distinction.

This work is not just a history, for Coe spends much time in clarifying the arguments of previous historians, the use of the "Mayan long count," the operation of the Mayan calendar, and how to read Mayan mathematical symbols. The section of glyphs and glottal-stopped pronunciation is the most informative I have read in this area of study.

The vocabulary of the work is that of an upper-division student in college. Therefore, the work should be used as a resource work for teachers. It also could be used by a secondary teacher for the thermofax masters and overlays for transparency usage.

Covarrubias, Miguel, Mexico South, The Isthmus of Tehuantepec, Alfred A. Knopf, Inc., New York, 1967.

Mexico South is the result of an extensive study that was conducted by Covarrubias during the Forties. He was one of the first people to examine the Isthmus in a comprehensive, analytical study. This whole area is ancient in its traditions and cultural heritage. Covarrubias examined the Eastern and Western part of the Isthmus. He compiled factual knowledge of the social, political and religious systems of the different Indian tribes of the area: Coatzacoalcos and the Zapotecas, he observed the Tuxtla volcanoes.

Covarrubias examined the culture of the Vera Cruz area, the dances: el danzon y Huapangos, their passionate, yet cool expression. He then observed the terrain and commented on the power of the natural setting, resources, etc. In the Sanctuary of the Serpent (Coatzacoalcos) Covarrubias maintains that life here is very much similar to what it was during the time of the conquest, five centuries ago. Covarrubias looked into the artistic creations of the peoples of Coatzacoalcos region, such as weaving, work with rubber, etc.

On the religious plane, the Jaguar held a sacred position; he was venerated as an animal with supernatural powers. And, of course, the Serpent held a special position, for the God Quezalcoatl was to have come from this region.

Covarrubias looked into the archeological findings at La Venta, excavations near the Tanola river. The people of La Venta, like the Mayas, erected steles, carved, upright stone slabs to commemorate an event. The huge head of the rain god was found in the jungle at La Venta. He exposed the greatest treasures of art: the jade work, the clay, stone reliefs, and, naturally, the architectural treasures of Monte Alban.

The author then examined the Western part of the Isthmus Tehuantepec, Juchitan, Zapotec capitals. The name Tehuantepec, in the Nahuatl tongue, means "Jaguar Hill." This name was given to the principal hill where the capital was built. Covarrubias explored the ruins of Monte Alban more closely. At the time of his research, the excavation was still going on and archeologists had made some fantastic findings.

Covarrubias then examined the political development of the country and its impact on the area. He then goes extensively into the life style and more of the people of the Isthmus.

de Lemons, Pedro. Mexico, Arts and Crafts. Massachusetts: School Arts Magazine, 1935.

This book is not much use in the study of Ancient Indian Art because it deals mostly with the folk arts of Mexico, and very well. It was valuable for this paper in that it gave two plates on Ancient Aztec designs, which were used for design projects.

Driver, Harold E. The Americas on the Eve of Discovery. Englewood Cliffs, New Jersey: Spectrum Book, Prentice-Hall Inc., 1964.

This anthology is geared at the seventh to ninth grade reading levels. It has eleven fine articles, some of which have been written by Native Americans, that portray the Pre-Columbian, American cultures. The work takes an ethnographic approach and stays from making editorial conclusions and value judgments. The book would be a valuable resource work to both student and teacher when studying the indigenous civilizations of the New World.

Enciso, Jorge. Design Motifs of Ancient Mexico. New York: Dover Publications, 1953.

This book is most valuable in the study of Ancient Indian design because that is what the whole book is about. It also offered some good background information about the history of the designs.

Fernandez, Justion. A Guide to Mexican Art. Chicago: University of Chicago Press, 1953.

This book offers a large amount of background information on the different Indian groups, and also has some very interesting plates in it.

Gilpin, Laura. Temples in Yucatan. New York: Hastings Publishers, 1948.

This book is an in-depth study of Chichen Itza in Yucatan. It offered some background information, but most especially, it offered some fantastic plates.

Goetz, Delia. POPOL VUH: The Sacred Book of the Ancient Quiche Maya. Translated by Adrian Recinos into Spanish and by Delia Goetz and Sylvanus Moreley into English, University of Oklahoma Press, 1969.

The Popol Vuh is a fantastic piece of literature. I would compare it to the greatest masterpiece of art that have been handed down to us since ancient times. I am speaking of the Greek Epics, the Illiad, the Oddeasy, the writings of the Old Testament--the creation story known to us as the book of Genesis.

The Popol is the epic poem, the epic story of the Quiche tribe. It contains all of the cosmology, mythology, concept of the world, of the universe, and, of course, of the divinities. This writing encompasses the whole tribe--the struggles for survival, their herculian accomplishments. It is a history as well as a story of the development of the Quiche tribe. It covers their wars, their social, religious customs, practices, etc.

Greenblatt, Edward, and Mary Lee. Ancient Peoples of Mexico. California: Franklin Publishing Co., 1962.

Probably one of the better books for teaching the early portion of 6th grade social studies that is available in our district. Its mistakes, simplicities, lack of vividness and excitement and its gross generalities (compounding the inaccuracies) make it a poor book, but nevertheless, the best we had in any numbers. It is the book in which I found the material for making Aztec: Empire Builder. I have since found better materials which I will use after I'm able to buy at least two copies. It does contain some good drawings and the time-line at the end is, I think, outstanding. One other asset is adaptability to being broken into small parts for short lessons as each page poses several questions.

Groth-Kimball, Irmgard, and Frantz Feuchtwanger. The Art of Ancient Mexico. London: Thames and Hudson, 1954.

This book also offers a lot of good background information about the various Indian cultures, and also a lot of beautiful plates, which were used for design sources.

Harper, Robert A., et al. Learning About Latin America. California: Silver Burdett Co., 1963.

A thoroughly nauseating book with little to offer in the way of depth, accurateness, and challenge. Some drawings that can be useful. Probably one of the better of the required texts. But this is certainly no endorsement for its use.

Krickeberg, Walter. Las Antiguas Culturas Mexicanas. Traducción de Sita Garst & Jasmin Reuter, Fondo de la Cultura Económica, México, 1964.

Esta obra extensiva se trata de un estudio arqueológico antropológico de las antiguas culturas Mexicanas. La tesis central es que en México, o sea en el valle de México, existieron tres culturas antes de la cultura Azteca: Fueron la Tolteca, la Teotihuacana y la Arcaica. Los descubrimientos arqueológicos indican que la cultura mas antigua es la Arcaica.

Estas tres culturas abarcan un espacio de más de tres mil años. La época Azteca es solamente el último capítulo de una larga evolución en Meso-América.

El autor examina la vida en el valle de México, dando comparación del presente y del tiempo de la conquista utilizando las escrituras del franciscano Sahagun. Krickeberg habla de las lenguas de las diferentes tribus. Un punto de interes es el uso de el pueblo Azteca de la palabra "Popoluca", i.e., los tartamudos para designar a las tribus the habla Nahuatl, corresponde casi exactamente a la palabra Griega "Barbari". Los Griegos usaban esta palabra para designar a los extranjeros porque ellos usaban syllabas que eran incomprensibles para los Griegos, que creian que los extranjeros hablaban diciendo "Bar bar, bar bar". Por esa razón les pusieron "Barbari", o sea Barbaros. Hasta la fecha se usa esta designación. Me imagino que los Aztecas utilizaron la misma lógica para llegar a esta palabra.

El autor examinó el pueblo Azteca, la fundación de la ciudad de Tenochtitlan, la leyenda de la migración de el pueblo Azteca, examinando el lineage de los reyes Aztecas. Naturalmente, como el estudio fue arqueológico, examinó la ciudad, excavaciones de ruinas, etc. Para esto, hizo un estudio del codice de la Historia General de las Cosas de Nueva España, de Sahagun.

Sobre la conquista, Krickeberg mantiene que Cortés pudo tomar poder del imperio debido a una grave debilidad interna de las instituciones. Por contraste, el imperio Inca fue mucho más difícil de conquistar le costó mucho más pérdida de sangre y fuerza a los imperialistas Españoles. ¡Los Incas mantenían un gobierno central muy fuerte con habil administración, almacenamiento de recursos, y distribución de trabajo en un nivel asombroso! Los Aztecas tenían una confederación similar a las tribus de norteamérica, los Iriqueses, por ejemplo. Los Españoles se dieron cuenta de las condiciones políticas del imperio Azteca y decidieron, con la ayuda de tribus oprimidas por los Aztecas, atacar la gran ciudad de Tenochtitlán. La ambición de la conquista fue acentuada por los regalos de el embajador Azteca.

Krickeberg examinó las estructuras sociales, la familia, el lineage paternal, las tradiciones familiares, religiosas, etc.

La segunda parte de la obra fue dirigida a los pueblos Toltecas y Chichimecas. Estos se migraron desde el norte de la Meseta Central guiados por un caudillo enteramente legendario llamado Xolotl. Se establecieron en Tenajuca.

Incluido en el estudio de los Toltecas, examinó Krickeberg las ruinas de Chichén Itza. Esta ciudad, dice Krickeberg, no fue fundada por los Toltecas; existía mucho tiempo antes de el imperio Tolteca. Hizo una examinación extensa de los templos y edificios en territorios que cubre una superficie de mas de 5 kilometros.

La tercera parte es dedicada a las culturas Teocráticas. Examinó la vida, cultura y religión de los Teotihuacanos y usando como base de sus estudios la arqueología. Siguió la cultura Zapoteca de el valle de Oaxaca viendo la arquitectura, estilo de vida, el arte, etc.

La cuarta parte examinó las culturas Arcaicas, e.g., los Olmecas. Esta civilización recorrió por dos milenios y medio de historia cultural de Mexico. Otra vez, hizo sus estudios en los encuentros arqueológicos, examinando el arte, la escultura, pinturas, etc., y la arquitectura.

Este libro es de mucho merito y tiene gran información arqueológica que es de mucho interes, especialmente el arte que ha sido descubierto.

Leon-Portilla, Miguel. The Broken Spears - The Aztec Account of the Conquest of Mexico. Boston: Beacon Press, 1962.

This well written work has been needed for a long time. As the title implies, it is an Indian

account, as translated from Aztec Codices, of the invasion of Meso-America by the Spaniard. It not only balances the Spanish and consequently the usual textbook account, but also vividly portrays the soul and dynamics of cultural genocide. It is a "must read" for teachers. The language in the work is such that it could be read easily by anyone possessing a fourth-grade reading skill.

Leon-Portilla, Miguel. Pre-Columbian Literature of Mexico. Translated from the Spanish language by the author and Grace Labonan, University of Oklahoma Press, Norman, 1969.

This is a collection of poetry and prose from the different Indian cultures: the Aztec, Mayan, Mixteca, Zapoteca, etc. There are available many collections of writings of those who spoke the Nahuatl language. The ancient writers, the most ancient which appear to be, according to archeological findings, at the time before Teotihuacan, possibly the Olmecs, wrote on the bark of the amate tree (wild fig paper) using pictograms, ideograms and a partially phonetic form of inscript.

Leon Portilla discusses the different codices that are available: e.g., the Rabinal Ochi, the Memorial de Tecpon-Atitlan, the Titulo de los Senores de Totonicapan, etc. He treated the different myths of creation, cosmic origin. Portilla then discussed the Lyric Poetry.

This book is really fantastic. I found the commentaries on the text most enlightening and valuable.

Lindop, Edmund. Life in Latin America. Palo Alto: Ginn and Co., 1960.

Another standard text with very little to offer. Again, the pre-Cortes treatment is nominal and implied to be quaint but unimportant. Might be useful for pictures and perhaps for a few of the sentences to incorporate into home-done work. Good pictures and a fair description of Tlatchti.

Morley, Sylvanus G. The Ancient Maya, revised by George W. Brainerd. Stanford, California: Stanford University Press, 1956.

This book is an overview of the Maya civilization. The first chapter deals with the geography of the Mayan environment which is divided into three natural subdivisions.

Chapter II describes the Maya Indians: their physical characteristics, their language, and their psychological qualities.

By means of archeological data, the origins of the Maya civilization as viewed through its Classic and Post-Classic stages, as well as the events that led to the Spanish invasion and conquest of the Yucatan and Peten regions, are related in Chapters III thru VII.

This revised edition of *The Ancient Maya* is a well documented work with an extended bibliography that leads the reader to other source materials.

The authors are not merely content to present their material on the Maya; but through their explanations, such as found in Chapter XII, try to involve the reader in a basic understanding and interest in these aspects of Maya life.

The use of a list of figures and plates made the writer's descriptions so much more explicit.

I do question a few statements the author made such as those found on paragraph 1, page 33 and paragraph 2, page 39. I found these statements of opinion too narrow and biased. These points of view were not sufficiently explored to produce such an unqualified statement.

Certain archeological terms such as stela, monochrome, polychrome, baktun, and others were not adequately defined. A glossary of terms would have been very helpful.

The succeeding Chapters, VIII thru XVI, describe the manners, life-style, and customs as observed in their religion, sciences, arts and governmental and social organizations.

The last chapter appraises the Maya civilization in its own right and in comparison with other world civilizations, listing both its advanced and primitive traits. The author then sets forth Childe's and Steward's theories of social evolution concluding that: "the Maya civilization cannot be fitted into any universal criteria or series of developmental stages such as Childe postulates; it can perhaps be approached in Steward's terms, as an example of a highly successful adaptation to a particular environment." (p. 435)

As a whole, I found this book very informative as well as interesting. I would recommend it for anyone interested in an objective treatment of Pre-Columbian history.

National Geographic.

- a) Garret, W.E. "Mexico's Little Venice." June, 1968, pp. 876-888.
- b) Garret, W.E. "South to Mexico City." August, 1968, pp. 145-193.
- c) National Geographic, Archeological Map of Middle America.
- d) McDowell, Bart. "Mexico's Window on the Past." October, 1968, pp. 492-521.

The first two contain occasional drawings that are useful for ancient Mexican history. But they mainly deal with modern Mexico and only helpful as background for the teacher. The last one is excellent background for the teacher and contains many interesting and useful pictures. Also, the Archeological Map that accompanies this issue is extraordinary, and should be owned in quantity if possible.

Nicholson, Irene. Mexican and Central American Mythology. London: Paul Hamlyn, 1967.

This work is one of the most concise single volumes on Meso-American Mythology and art that I have ever had the pleasure of reading. It is beautifully illustrated and is priced at only \$2.95 (which is unbelievable for a hard back with color plates). If the vocabulary were simplified, this work could be used in eight-grade English class mythology units.

The material depicted in this work shows the mythology of Meso-American as creating "a world compact of jewels and flowers and birds, bright as a kaleidoscope and as everchanging." Nicholson is obviously enchanted with the myths and the culture from which they came. Her perspective is one of the story teller with a tale that must be told in all of its magnificence.

Among this book's many and varied assets is a concise and almost never presented comparison of Mayan, Toltec, and Nahua mythology. Nicholson uses the myths themselves for her documentation in backing up her main point of emphasis which is that the basic religions of the Americas were not, as is commonly believed, founded on human sacrifice and the tearing out of hearts. Due to this emphasis, the Aztecs and Spaniards appear in this book in the role of the destroyers who debase the culture which provided them with the outward trappings of glory.

This work should be on either the recommended or required reading list for any course dealing with Pre-Columbian American. The work presents the student with a foundation upon which he can build an understanding of a society that used simple myths about its immediate environment to explain man's relationship to the universe.

Peterson, Frederick A. Ancient Mexico, An Introduction to the Pre-Hispanic Cultures. New York: Capricorn Books, 1969.

The aim of this work is "to show that we have greatly underestimated the Mexican Indians." The work is written in an ethnographic style. The author uses the first one-third of the work to lay out a sketch history of the Indians of Meso-America. As a history, this section leaves a lot to be desired, for a chronological study, of all the Indians in Meso-America forces the author into a lot of "meanwhile, back on the ranch" type of situations. Yet, this very problem brings about some sort of historical perspective that is helpful when reading more definitive works.

The real value of this work is in the sections relating to the mathematics, education, religion, economics, political organization, and cultural development of the peoples of Meso-America. The material found in these chapters would be of great value to educators that are trying to incorporate culture, relevant material into their lesson plans. Also of value in these chapters is the author's attempt to compare one Meso-American Culture with another Meso-American Culture to its contemporary European Culture. Peterson expresses the point of view that most U.S. citizens of Northern European and Asiatic cultures think themselves far superior to the indigenous cultures of Pre-Columbian America. He feels that Europe had mechanical superiority over America; but in the fine arts and practical crafts, in social and ethical values, and in many branches of knowledge, America was easily on a par with Europe.

This work would be most useful in any course that deals with Pre-Columbian America. The maps with one exception are simple and clear, although there are not enough of them to really help the reader get his bearings geographically. The work contains a wealth of line drawings that are very enlightening. The documentation is not as thorough as I would have liked it to have been, but it is more than satisfactory. I plan to use this work in class for further evaluation of it.

Ross, Patricia Fent. Mexico. California: Department of Education, 1964.

A small, somewhat sterile description and approach to early Mexican history. Some could be incorporated into a special paper by an interested teacher, but otherwise the book is fairly useless, plus it is apportioned minimally to each classroom.

Simpson, Lesley Bird. Many Mexicos. Berkeley: University of California Press, 1967.

Essentially, the theme of Many Mexicos is just that--Many Mexicos. Mexico is an intricate and complicated amalgamation of many sub-areas. Geography is viewed as the most singular important antecedent to wide variations of regional diffusion and consequently, present institutions. Geography, topography, rainfall, climate, etc., collectively were factors that limited land available for cultivation, and contributed to difficulty in transportation and communication.

Far too many chapters (18 of the 27) concern the period before Mexico's Independence. Simpson shows his great interest in Mexico's Spanish heritage that he also feels the need to express to the reader his disgust of the recent emphasis of "Indianism" in Mexico. He feels it absurd for Mexico at this point to deny its Spanish heritage.

In discussing the future of Mexico, Simpson takes the following position: "But the numerous dams and irrigated systems, the much-publicized ejidos, the greatly increased use of farming machinery, improved seed, the chemical fertilizers - all of these intelligent measures are defeated in advance by the prodigious fertility of the Mexican mother and the virility of the Mexican male for whom a vast family is proof of his manhood." I feel in this instance and many others he is overgeneralizing and shows his "superior Anglo" attitudes.

Simpson also maintains the generally opposite view of Cortes in that he was a "builder" not a "destroyer" and by far more intelligent than his contemporaries. "Cortes in fact did not truly destroy a civilization, only its political and religious structure." Simpson refers to Cortes as being "driven by an insatiable curiosity" rather than by greed.

I would say that this book is loaded with facts and would make for interesting reading as well as serve as a source book for Mexican History (Pre-Columbian) classes.

Soustelle, Jacques. Daily Life of the Aztecs. New York, The MacMillan Company (1962).

Mr. Jacques Soustelle has given the reader an excellent and vivid account of Aztec life as it was prior to the conquest. The author appears to be a historian of the first magnitude and it is evident that his book is the result of exhaustive research. Documentation is based on numerous sources and the author has done a great deal of cross checking before any conclusions. In his book, Mr. Soustelle covers

every aspect in the Daily Life of the Aztecs and his study affords the reader an opportunity to become acquainted with Aztec life in Mexico.

The author's honesty with himself and his reader is above reproach: when he does not know a specific answer and is making an educated guess, he informs the reader of such. The author also provides the reader with an excellent list of bibliographical sources.

Sundel, Alfred. A History of the Aztecs and the Mayas and their Conquest - The Rise and Fall of America's First Great Civilization. New York: Collier-MacMillan Company, 1967.

Contrary to the title which seems to imply that this work is an introductory history about the Mayas and the Aztecs, this work is almost entirely written about the Hispanic invasion of the New World. The book is written as a great historic adventure of epic proportions, with the "peaceful, civilized Indians" falling before the greedy Spanish sword.

This book is about the destruction of a great civilization by men of greed, not a historic account of the "rise and fall of America's first great civilization."

The perspective of the author which seems to project a feeling that the Spanish were the militarized savages and the Indians were the civilized victims of the Spanish sword, religion, greed, and disease. But the glib manner in which this perspective is portrayed makes it as sickening and as absurd as a John Wayne western.

Points of value of this work are the following: a chronological outline of Pre-Conquest Middle America, the descriptive manner in which the topography is presented, a large quantity of maps and charts that graphically present tribal and linguistic break-down of Middle America, and a wealth of information dealing with Indian contributions to the Mestizo culture which now dominates Latin America.

The history of the Mayas and Aztecs does poke through the maze at times and is informative, leaving the reader hungry for more, but this information is in the form of an aside and really part of this narrative. Of special note is the historical summary of the military and religious development of the Aztecs. Unfortunately no such summary is given about the Mayas.

This book could be used at the Senior High School level as part of an independent study project for an accelerated student. It also could be used in an introductory course in Chicano or U.S. History. I

would not recommend its use in any upper division course - not even as an overview, for there are several other books that deal with this subject matter which would be more suited for this purpose.

Tebbel, John, Ramon Eduardo and Ruiz, Phd. South by Southwest. New York: Doubleday and Co., Inc., 1969.

I only used this for some of the drawings and got it too late to assess its written worth. It is written to give the Chicano a rightful pride in his heritage and ostensibly written for a young audience (probably 6th or 7th grade level).

Toor, Frances. Mexican Popular Arts. Mexico: Frances Toor Studios, 1939.

This is a book which deals almost entirely with the popular arts of Mexico, but does give some information about the Indian heritage in the arts of Mexico, which were used for background information in this paper.

University of Michigan. Mexican Art, Precolumbian to Modern Times. Michigan: University of Michigan Press, 1958-1959.

This was sort of a portfolio, so that the written materials were of some use, but the plates were the most useful part of the text.

Verrill, A. Hyatt and Ruth Verrill. America's Ancient Civilizations. New York: Capricorn Books, 1967.

America's Ancient Civilizations tells of the development of the Mayan, Incan and other great American civilizations. The emphasis is on the Pre-Columbian period but shows the devastating impact the Spanish conquistadores had on the civilizations discussed. The book is divided into two portions: The Mexican civilizations and the South American civilizations. Essentially, this book is best described as a general survey of the many archeological discoveries (cities, carvings, tools, weapons, textiles and art objects) and how these discoveries have aided us in determining the religion, work habits, governmental structure, or, in short, the culture of the people. The book does not lack detail, however. Details and important facts and interpretations are used in support of the theories the authors advance.

The authors analyze the differences between culture, discuss the importance of climate and natural phenomenon upon these cultures. Varying opinions of archeologists and anthropologists are discussed in

terms of unsolved mysteries surrounding the civilizations. Also discussed are the amazing and outstanding achievements of the people (irrigation systems, domestication of animals and crops, engineering feats, etc.).

Since the authors used as guideline their own common sense, logical conclusions and obvious facts rather than rehashing the theories of others, there is a freshness and pleasant dialog going between author and reader. It is obvious the authors enjoy their work a great deal. Their numerous first-hand accounts of the digging sites and experiences make this book a delightful experience to the reader.

von Hagen, Wolfgang Victor. The Aztec: Man and Tribe. New York: Mentor Books, 1958.

This book on the Aztec is not the most thorough or accurate; but it is easy to read; has many diagrams, maps, and figures; and would be a good resource work for the teacher. Some of von Hagen work has an Anglo-European superiority bias. The plus factor for this work is that it costs only seventy-five cents.

Wolf, Eric. Sons of the Shaking Earth. Chicago: The University of Chicago Press, 1969.

Sons of the Shaking Earth is an excellent anthropologically based account of Mexican and Guatemalan history from the beginning of man to present day.

The only unfavorable comment I could make is the tendency of the author to editorialize in the name of fact. There is a closing passage on the present-day mestizo that could easily upset some people due to its criticism of his situation. Still the goal of a historian should be truth; truth may not be attractive always. Mr. Wolf does not insist on absolute acceptance of his line of thought. He merely offers what his sources suggest to be true for him.

"Generations of Adam" is an informative chapter dealing with how man came to the Americas and what combinations of races and ethnic beings these were. The thoroughness of Wolf's contribution leaves little area for self-deceiving speculation.

Slavery is an issue well-discussed. The fact of Negro, Oriental and eventually Indian slavery in Mexico is covered with a minimum of subjective value judgments. The concept of social caste and its various developments was and is an intricate part of the history of Mexico and is, therefore, included as one of the major themes in this account. The continuity is excellent. The Indian empire and its

slaves, the Spaniards and their Black and Mongoloid slaves, up through to modern days and the "slave" mind (servant mentality) of the Mexican mestizo are all explained.

Wolf includes many illustrations, a lot of them are of art objects and creations from the ancient cultures. They are pertinent to the different chapters and of help in understanding the words surrounding them. The pictures and writings also are well-documented and diligently recorded in detailed bibliographical sections for each chapter (located at the end of the book).

The Spanish influence is covered in its many different facets. Wolf explains the effect of the two cultures on one another after having gone over for the reader the histories of each before their meeting. The only positive element in the long run of Spanish conquerors on the indigenous people was the Christian religion. It wasn't that different in principle from their own and eventually gave them (the Indians) hope and respect for themselves that the Spanish had all but destroyed. Other factors considered were the population problem and language differences. Although European diseases nearly wiped out the Indian inhabitants, the influx of other peoples were necessary for the nations to expand sufficiently and to survive. Language and other cultural division points were minimized with the need for unity to combat their Spanish "lords."

In the last chapter, Wolf gives detailed descriptions of Indian cultural life and social status today, discusses the mestizo and his "hang-ups" and problems, and presents questions facing the Mexico of today as a result of their complicated and colorful history. This is also a good section that brings the history into a position of relevance to modern Mexico and Chicano peoples in the U.S.A. (This is not mentioned specifically but is a logical extension of the Chicano mind in Mexico itself.)

Overall, I enjoyed reading this book and intend to reread it. It would be in my opinion an excellent book for any Mexican or Pre-Columbian college level history course. The work has its flaws, as do all books, but could be extremely useful as resource work in a high school classroom.